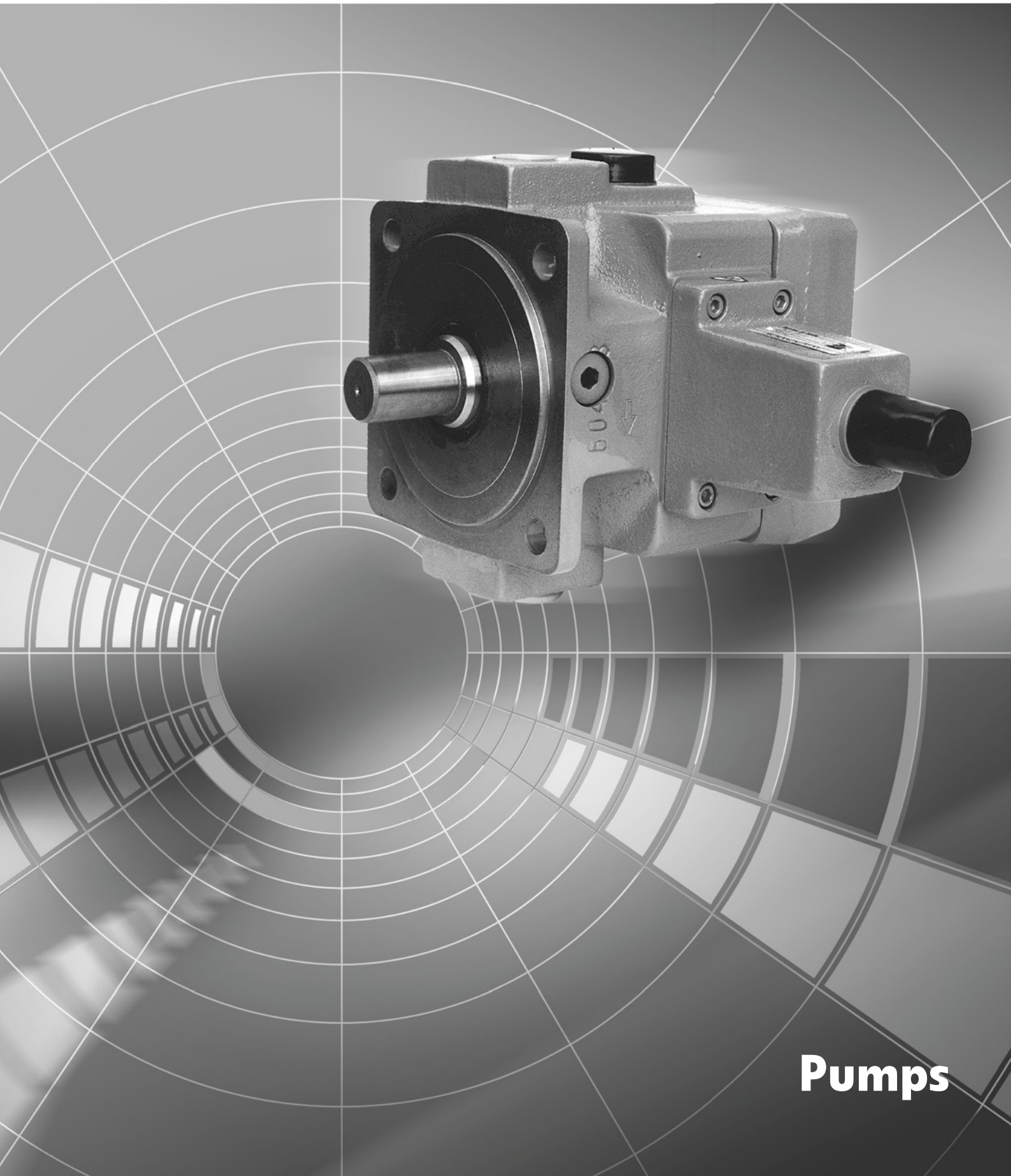
PONAR®
wadowice



Pumps

VANE PUMP TYPE V3/12

WK 414 501

04.1999r.

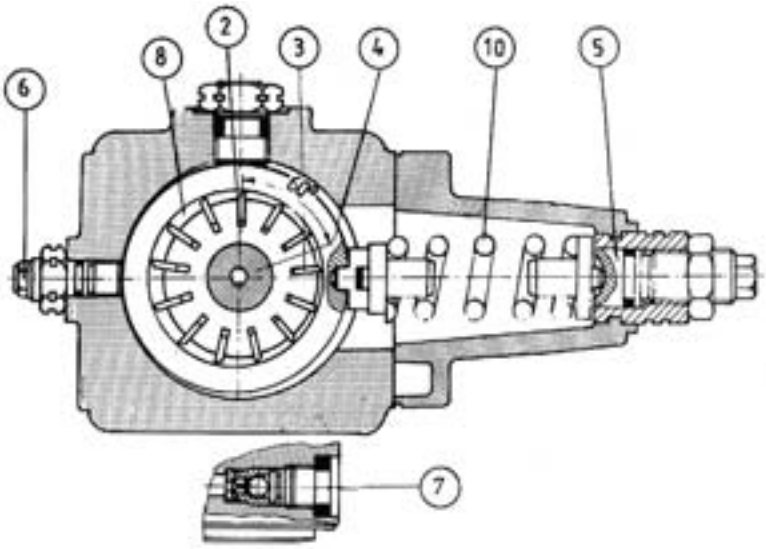
Size 12	up to 10MPa	13 dm³/min

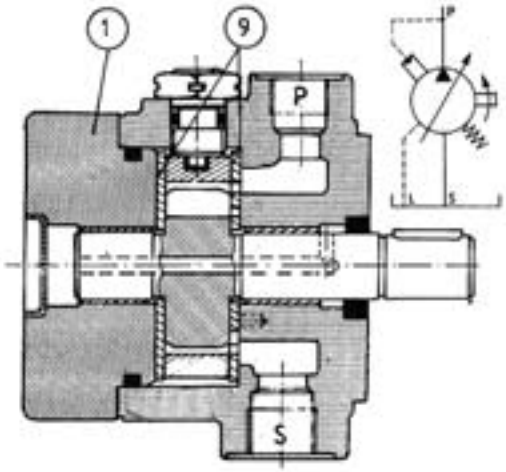
Vane pumps type PV serve to generate an oil flow in hydraulic systems.

ADVANTAGES

- easy commissioning by automatic air bleeding
- low noise level
- hydrodynamically lubricated bearings for long bearing life
- good sliding characteristics of control discs due to bronze coating and semi-fluid friction.

DESCRIPTION OF OPERATION





Hydraulic pumps type V3 are vane pumps with variable displacement and pressure control. Pumps type V3/12 are composed of a housing 1, rotor 2 with simple vanes 3, stator 4, pressure regulator 5, volume screw 6, valve for automatic air bleed 7 and control discs 9.

Suction and delivery

Two vanes 3, the rotor 2, the stator 4 and the discs 9 form the chambers for the transport of the fluid. By moving the rotor 2 to the right the chambers 8 increase, starting from the suction channel and they fill up with fluid. When these chambers have reached their maximum volume they are separated from the suction side by means of the control discs. When the rotor further turns to the right the chambers are connected to the pressure side.

They decrease their volume and thus fluid is pushed to the pressure channel P and into the system. Volume setting screw 6 is designed for limiting the maximum flow of the pump.

Pressure setting

The circular stator ring is kept in an eccentric position by means of the spring 10. Maximum working pressure required in the system is adjusted by the spring 10. On reaching the set pressure the stator 4 (overcoming resistance of the spring 10) moves out of its eccentric position. The eccentricity decreases till the minimum flow replacing the leakage oil is obtained. After a pressure drop in the systam the stator 4 returns to the eccentric position and the pump delivers the full value of the set output flow.

Installation
Vane pumps type V3 can be installed in any desired position.
The pump may be connected to hydraulic systems only by means of flexible lines.

Drive
The pump may be connected to motor only by means of a flexible
coupling. All the coaxial conditions formulated by the coupling manufacturer must be maintained.
The shaft ends of both pump and motor may not transmit any longitudinal or radial forces.

Oil tank
The tank capacity must be properly selected so that the working temperature of oil do not exceed recommendations. If that is impossible a cooler must be installed.

Pipelines

The suction line should be designed so that the gives values of inlet pressure are not exceeded. The leakage lines should be fitted minimum 100 mm above the suction line and should be formed so that the leakages do not get immediately sucked back into the pump.
The suction lines and the leakage lines should be at least 200 mm apart. The pipe ends should be cut at a 45^{o} angle and should not reach within 50 mm of the tank bottom.

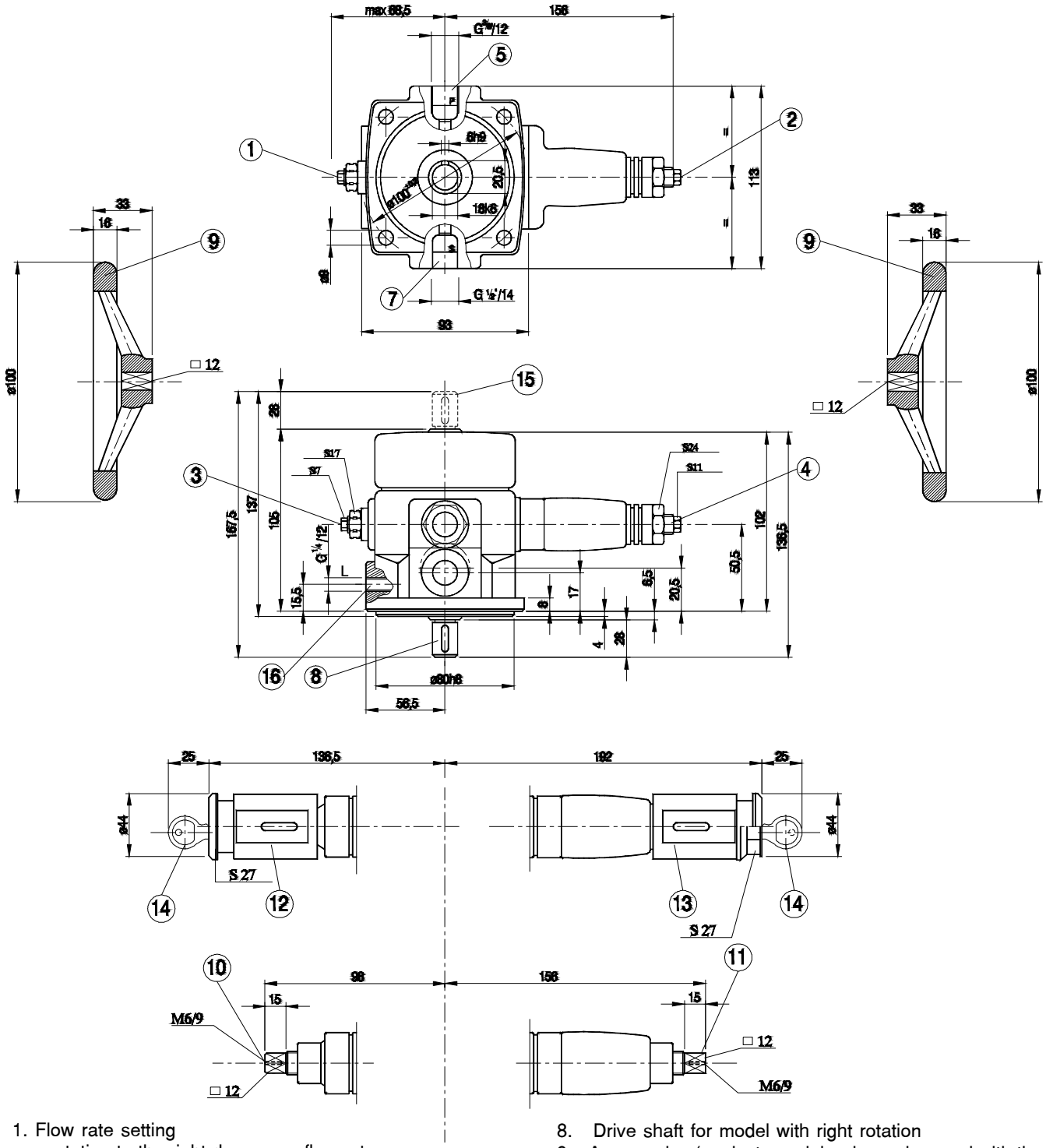
All pipelines even at the minimum oil level in the tank must be dipped minimum 50 mm in order to avoid the build-up of foam.

TECHNICAL DATA

Hydraulic fluid		Mineral oil, phosphate ester
Nominal output flow Nominal output Nominal output flow	dm^3/ min	13 at n = 1450 min^{-1} p = 1 MPa
Inlet pressure	MPa	- 0,02 to + 0,5
Outlet pressure	MPa	max. 10
Leakage pressure	MPa	max. 0,2
Torque (drive shaft)	Nm	max 54
Revolution per minute	min^{-1}	1000 do 1800
Nominal viscosity range - at pzero stroke < 6.3 MPa - at pzero stroke > 6.3 MPa	 mm^2/ s mm^2/ s	 16 to 160 25 to 160
Working temperature (fluid in a tank)	K	313 - 328
Fluid temperature range	K	263 - 343
Filtration	µm	16 (recommended 10 for long working life
Pressure range related to spring force	MPa	C 25 from 1,2 to 2,5 C 40 from 2,0 to 4,0 C 63 from 3,0 to 6,3 C100 from 5,0 to 10,0
Mounting method		flange mounting
Direction		right
Pipe connections Pipe connections		threaded connections
Shaft loading		radial or axial loads can not be transferred
Weight	kg	6,25

OVERALL AND MOUNTING DIMENSIONS

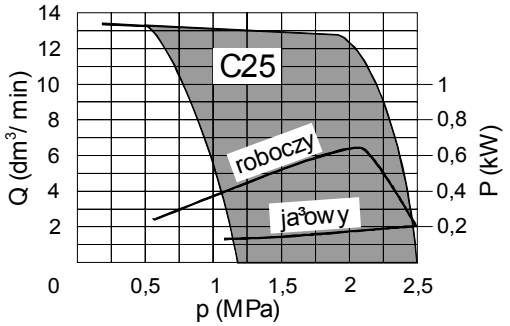
Pump for flange mounting - overall dimensions in mm

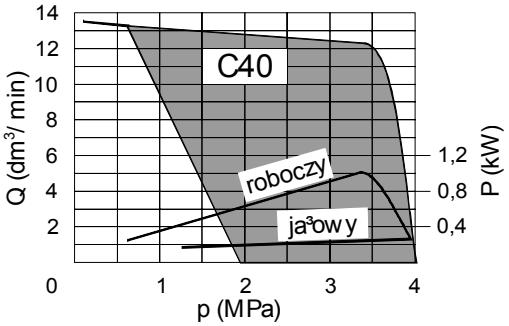


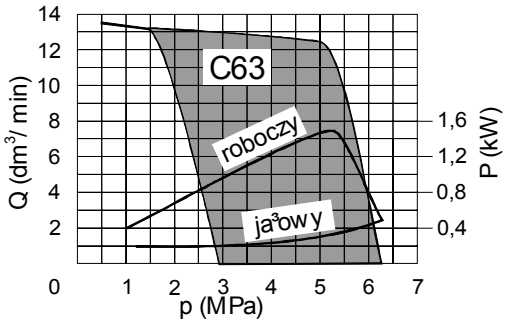
1. Flow rate setting
   - rotation to the right decreases flow rate
   - rotation to the left increases flow rate
2. Pressure setting
   - rotation to the right increases operating pressure
   - rotation to the left decreases operating pressure
3. Flow rate setting (by means of screw A)
4. Pressure setting (by means of screw C)
5. Pressure port
8. Drive shaft for model with right rotation
9. Accessories (against special order and agreed with the manufacturer). Setting by means of hand wheel fitted on square end setting
10. Flow rate setting by means of external square end (H)
11. Pressure setting by means of external square end (H)
12. Flow rate setting locked by key (S)
13. Pressure setting locked by key (S)
14. Key length 43 mm
15. 2-nd shaft end

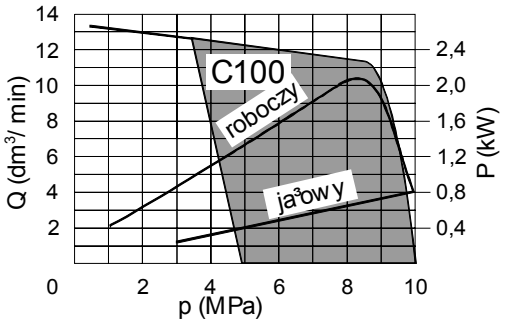
PERFORMANCE CURVES : measured at ν = 41 mm²/s and T = 323 K and n = 1450 min⁻¹

Flow - operating pressure - drive power curves for delivering and zero stroke.

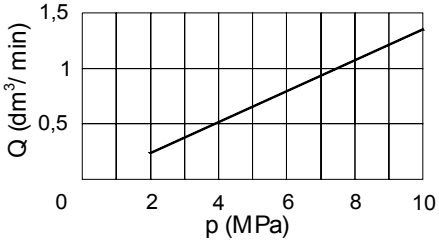




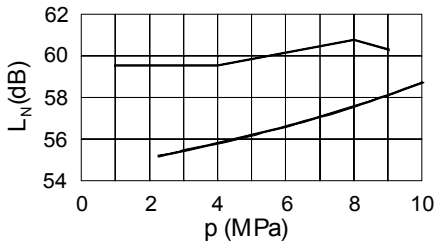




Leakage - operating pressure curve



Noise level - operating pressure curves at zero stroke and delivering, measured at distance of 1 m from pump

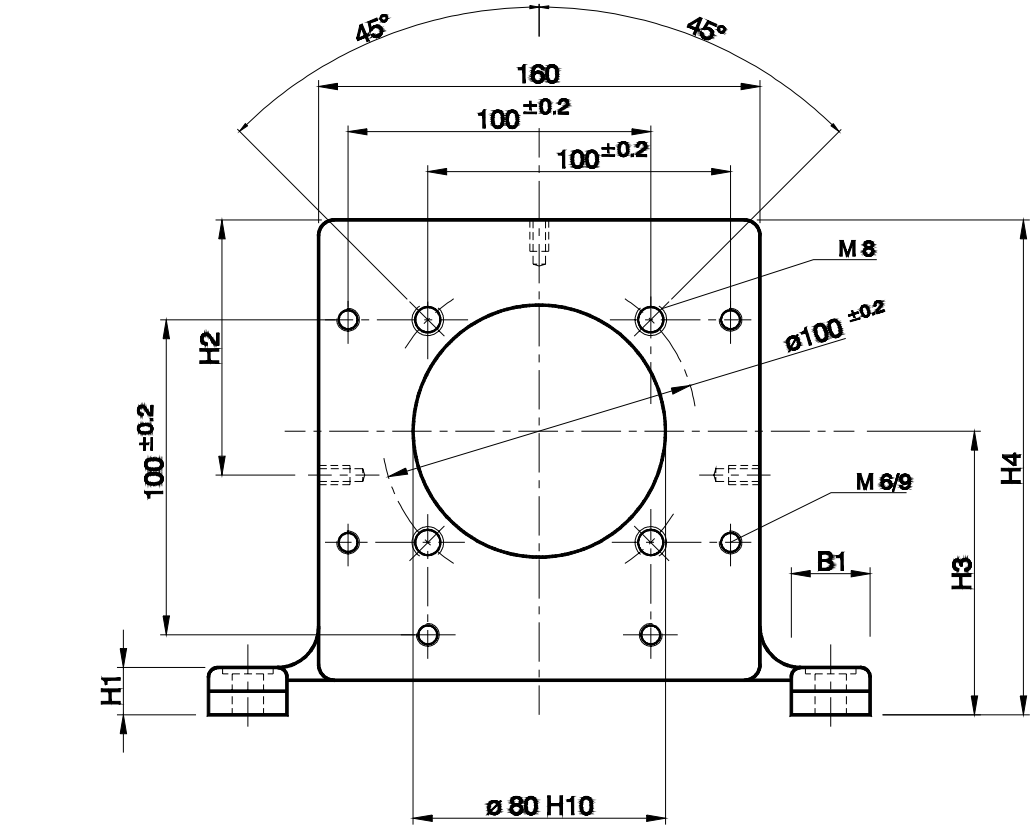


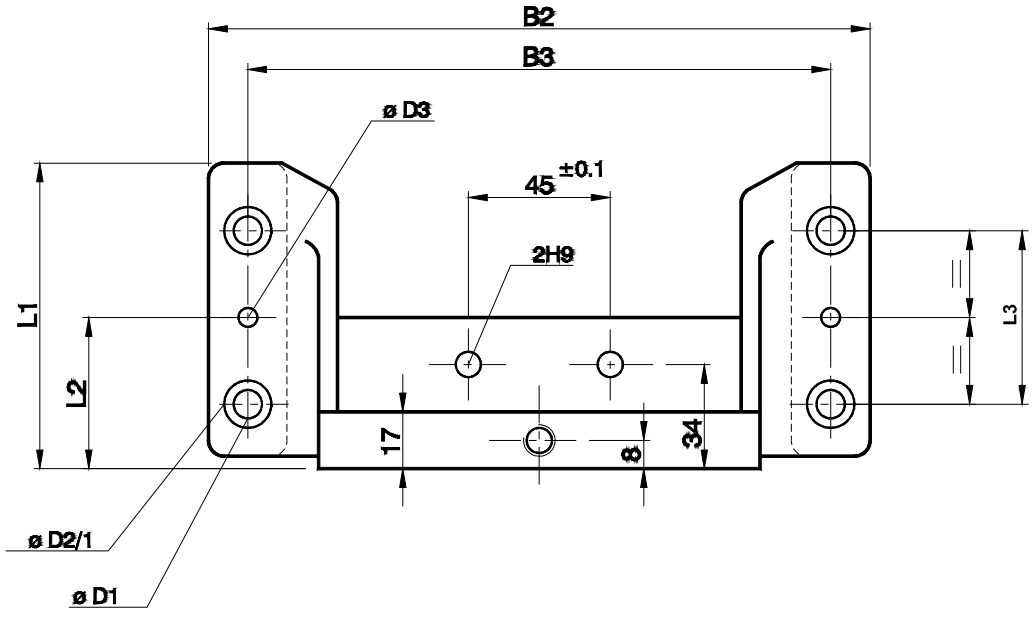
---------- noise level when delivering

- - - - - - noise level at zero stroke

OVERALL AND CONNECTION DIMENSIONS FOR BRACKETS

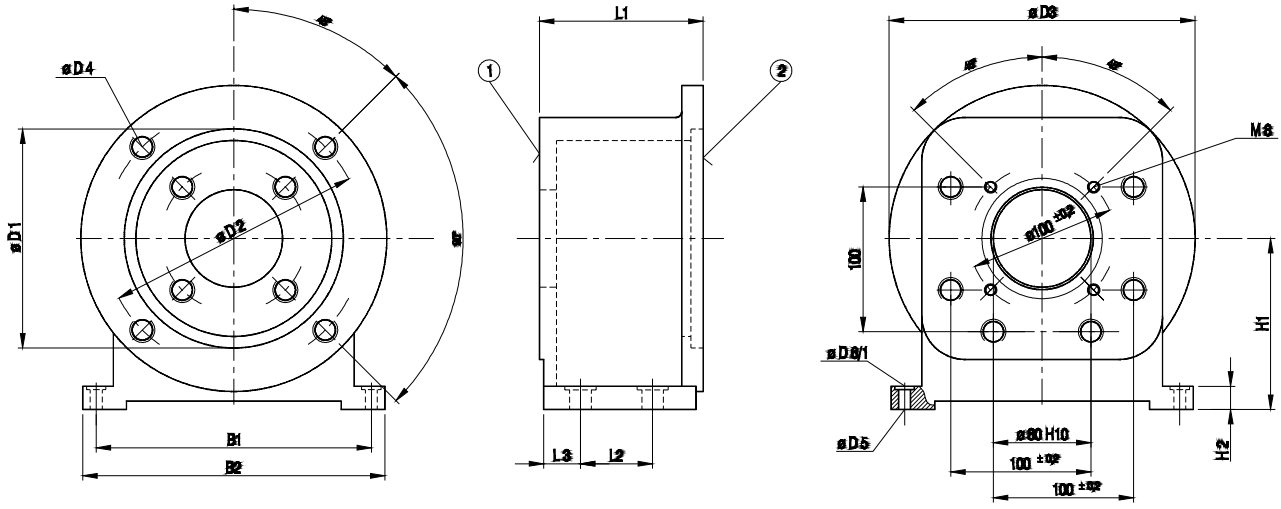
Single - flange bracket - overall dimensions in mm





Drive power in kW	B1	B2	B3 ±0.2	D1	D2	D3±0.1	H1	H2±0.2	H3±0.1	H4	L1	L2±0.2	L3±0.2	Weight
1,1 ... 1,5	35	210	185	9	15	6	15	80	90	157	93	48	55	2,5 kg
2,2 ... 3	35	210	185	9	15	6	25	80	100	167	93	48	55	3,7 kg
4	35	210	185	9	15	6	37	80	112	179	93	48	55	4 kg

Two - flange bracket - overall dimensions in mm



Power drive in kW	B1$^{\pm 0.2}$	B2	D1^{H10}	D2$^{\pm 0.2}$	D3	D4	D5	D6	H1$^{\pm 0.2}$	H2	L1$^{\pm 0.2}$	L2	L3	Weight
0,55 ... 1,5	180	210	130	165	200	M10	11	18	112	15	102	60	15	3,5 kg
2,2 ... 4	220	250	180	215	250	M12	14	20	132	15	112	60	20	4 kg

1 - Pump flange
2 - Motor flange

Note : Bracket and hand wheel available on a special order to be agreed with the manufacturer.

HOW TO ORDER

Orders coded in the way showed below should be forwarded to the manufacturer.

1 PV2V3	/12		1						

Series number:
31 = 31
(30 - 39) - Installation and connection dimensions unchanged

Nominal output flow - size 12 = 12
8.5 cm^3/rev

Rotation direction :
Right = R
Model with double shaft = D

Threaded connections = 1

Sealing
For fluids on mineral oil base = M
For fluids on phosphate ester base = V

Pressure setting
With hexagon end screw = C
With square end screw = H
Lockable pressure regulator = S

Zero stroke pressure range
10 MPa zero stroke pressure = 100
6.3 MPa zero stroke pressure = 63
4.0 MPa zero stroke pressure = 40
2.5 MPa zero stroke pressure = 25

Flow setting
With hexagon end screw = A
With square end screw = H
Lockable flow regulator = S

Air bleed valve

Additional requirements in clear text (to be agreed with the manufacturer)

Coding example : 1PV2V3-31/12 R1MC100A1

PONAR WADOWICE S.A.
ul. Wojska Polskiego 29
34-100 Wadowice
tel. 033/ 823 39 43, 823 30 41
fax 033/ 873 48 80
e-mail: ponar@ponar-wadowice.pl

PONAR® wadowice

PONAR wadowice

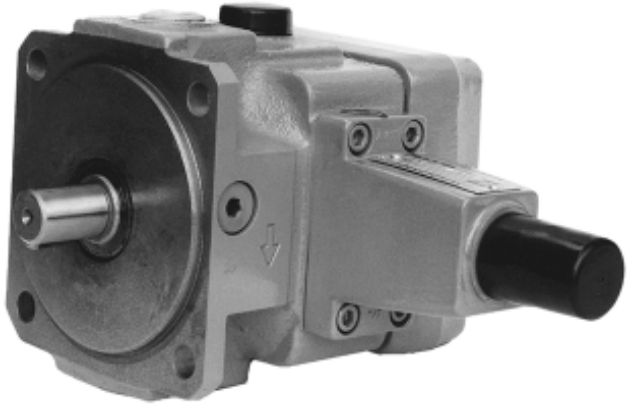
VANE PUMP TYPE V3/25

WK 409 073

04.1999r.

Size 25	up to 10MPa	25 dm³/min

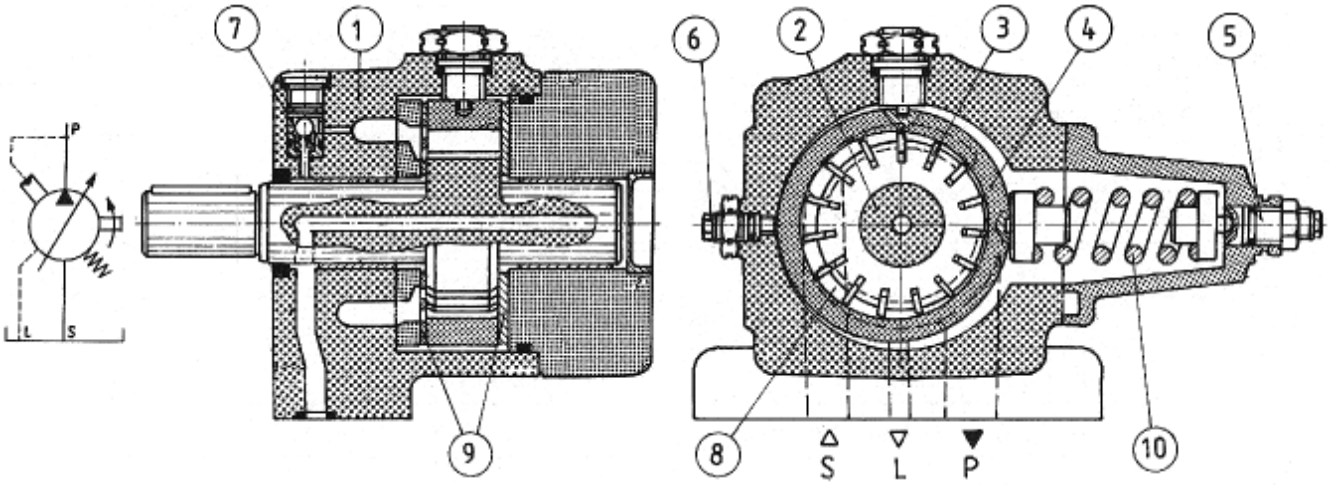
Vane pumps type PV serve to generate an oil flow in hydraulic systems.



ADVANTAGES

- easy commissioning by automatic air bleeding
- low noise level
- hydrodynamically lubricated bearings for long bearing life
- good sliding characteristics of control discs due to bronze coating and semi-fluid friction.

DESCRIPTION OF OPERATION



Hydraulic pumps type V3 are vane pumps with variable displacement and pressure control. Pumps type V3/25 are composed of a housing 1, rotor 2 with simple vanes 3, stator 4, pressure regulator 5, volume screw 6, valve for automatic air bleed 7 and control discs 9.

Suction and delivery

Two vanes 3, the rotor 2, the stator 4 and the discs 9 form the chambers for the transport of the fluid. By moving the rotor 2 to the right the chambers 8 increase, starting from the suction channel and they fill up with fluid. When these chambers have reached their maximum volume they are separated from the suction side by means of the control discs. When the rotor further turns to the right the chambers are connected to the pressure side.

They decrease their volume and thus fluid is pushed to the pressure channel P and into the system. Volume setting screw 6 is designed for limiting the maximum flow of the pump.

Pressure setting

The circular stator ring is kept in an eccentric position by means of the spring 10. Maximum working pressure required in the system is adjusted by the spring 10. On reaching the set pressure the stator 4 (overcoming resistance of the spring 10) moves out of its eccentric position. The eccentricity decreases till the minimum flow replacing the leakage oil is obtained. After a pressure drop in the systam the stator 4 returns to the eccentric position and the pump delivers the full value of the set output flow.

Installation

Vane pumps type V3 can be installed in any desired position.
The pump may be connected to hydraulic systems only by means of flexible lines.

Drive

The pump may be connected to motor only by means of a flexible
coupling. All the coaxial conditions formulated by the coupling manufacturer must be maintained.
The shaft ends of both pump and motor may not transmit any longitudinal or radial forces.

Oil tank

The tank capacity must be properly selected so that the working temperature of oil do not exceed recommendations. If that is impossible a cooler must be installed.

Pipelines

The suction line should be designed so that the gives values of inlet pressure are not exceeded. The leakage lines should be fitted minimum 100 mm above the suction line and should be formed so that the leakages do not get immediately sucked back into the pump.
The suction lines and the leakage lines should be at least 200 mm apart. The pipe ends should be cut at a 45^{o} angle and should not reach within 50 mm of the tank bottom.

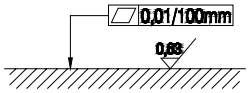
All pipelines even at the minimum oil level in the tank must be dipped minimum 50 mm in order to avoid the build-up of foam.

TECHNICAL DATA

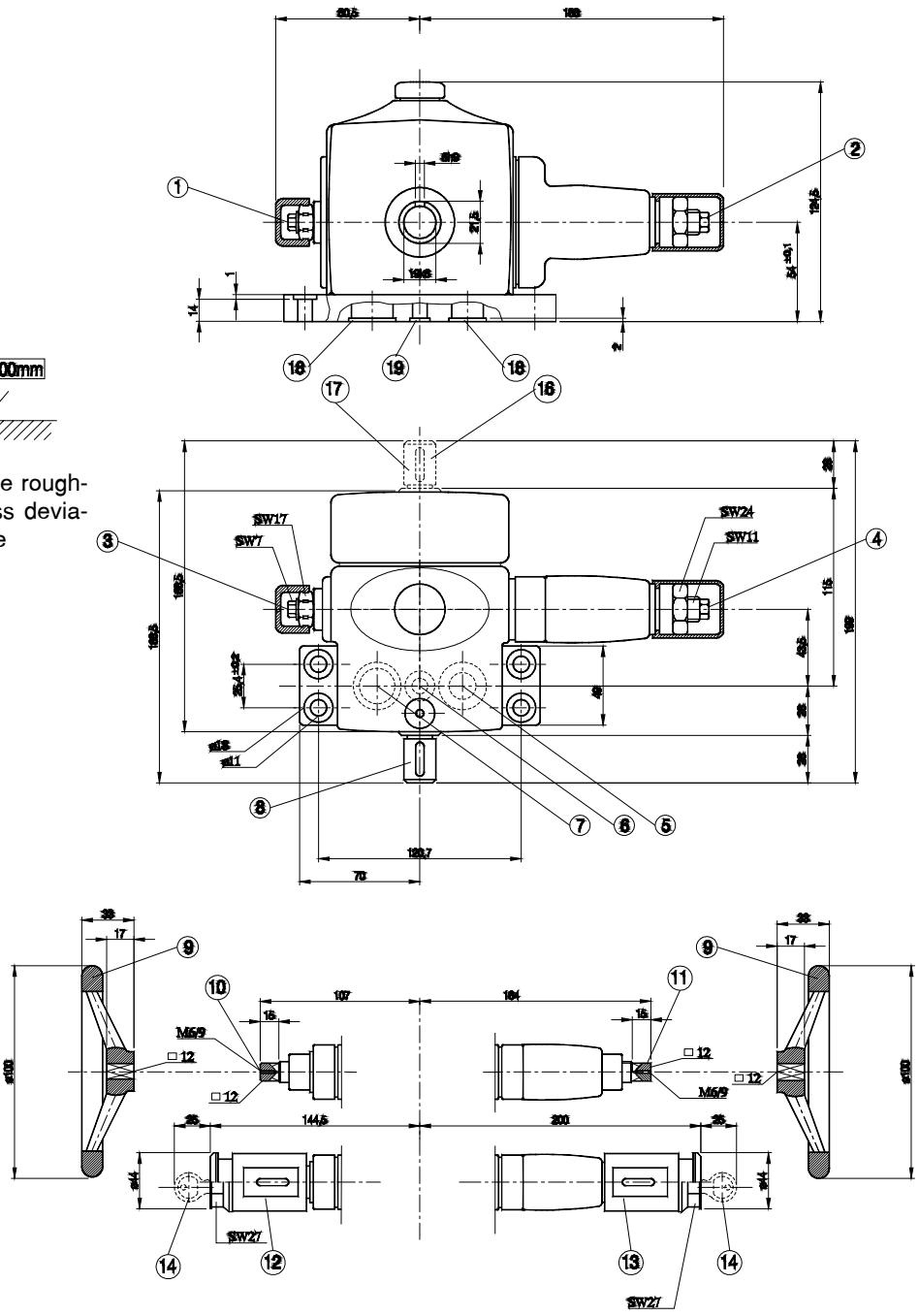
Hydraulic fluid		Mineral oil, phosphate ester
Nominal output flow	dm^3/ min	13 at n = 1450 min^{-1} p = 1 MPa
Inlet pressure	MPa	- 0,02 to + 0,5
Outlet pressure	MPa	max. 10
Leakage pressure	MPa	max. 0,2
Torque (drive shaft)	Nm	max 61,8
Revolution per minute	min^{-1}	1000 do 1800
Nominal viscosity range - at pzero stroke < 6.3 MPa - at pzero stroke > 6.3 MPa	 mm^2/ s mm^2/ s	 16 to 160 25 to 160
Working temperature (fluid in a tank)	K	313 - 328
Fluid temperature range	K	263 - 343
Filtration	µm	16 (recommended 10 for long working life)
Pressure range related to spring force	MPa	C 25 from 1,2 to 2,5 C 40 from 2,0 to 4,0 C 63 from 3,0 to 6,3 C100 from 5,0 to 10,0
Mounting method		flange mounting
Direction		right
Pipe connections		threaded connections
Shaft loading		radial or axial loads can not be transferred
Weight	kg	6,25

OVERALL AND MOUNTING DIMENSIONS

Pump for subplate mounting - overall dimensions in mm



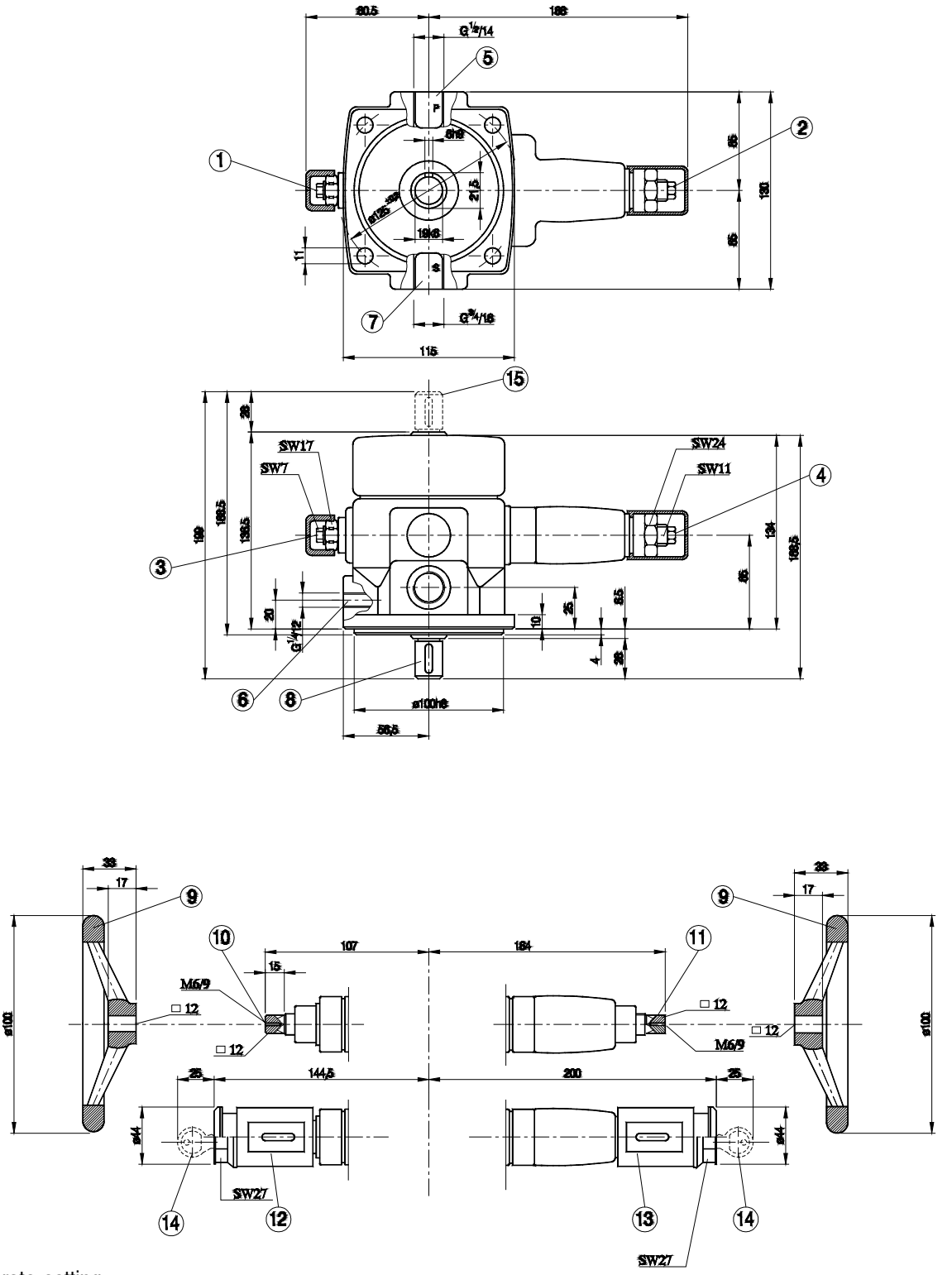
Admissible surface roughness and flatness deviation for a subplate



1. Flow rate setting
   - rotation to the right decreases flow rate
   - rotation to the left increases flow rate
2. Pressure setting
   - rotation to the right increases operating pressure
   - rotation to the left decreases operating pressure
3. Flow rate setting (by means of screw A)
4. Pressure setting (by means of screw C)
5. Pressure port
6. Leakage port
7. Suction port
8. Drive shaft for model with right rotation.
9. Accessories (against special order and agreed with the manufacturer). Setting by means of hand wheel fitted on square end setting
10. Flow rate setting by means of external square end (H)
11. Pressure setting by means of external square end (H)
12. Flow rate setting locked by key (S)
13. Pressure setting locked by key (S)
14. Key length 43 mm
15. Interface
16. Drive shaft for model with left rotation
17. 2-nd shaft end for model 1 PV...V3...D
18. O-ring 23.5 × 2.6
19. O-ring 12.4 × 2.6

OVERALL AND MOUNTING DIMENSIONS

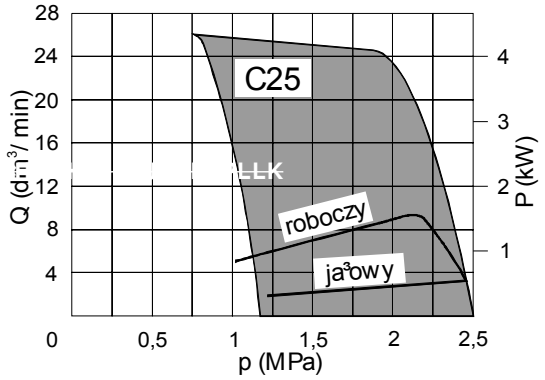
Pump for flange mounting - overall dimensions in mm

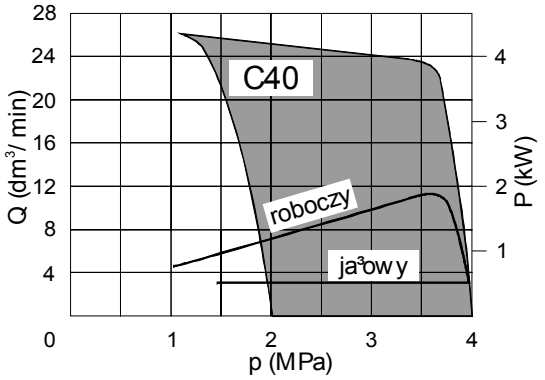


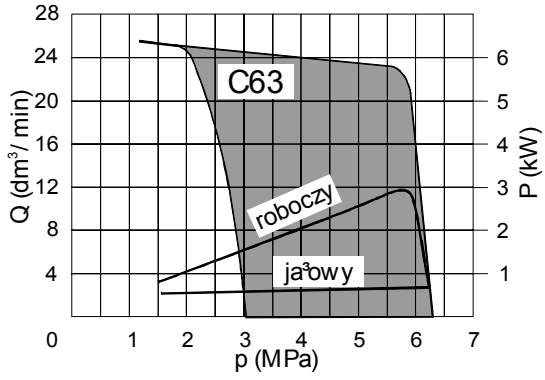
1. Flow rate setting
   - rotation to the right decreases flow rate
   - rotation to the left increases flow rate
2. Pressure setting
   - rotation to the right increases operating pressure
   - rotation to the left decreases operating pressure
3. Flow rate setting (by means of screw A)
4. Pressure setting (by means of screw C)
5. Pressure port
6. Leakage port
7. Suction port
8. Drive shaft for model with right rotation
9. Accessories (against special order and agreed with the manufacturer). Setting by means of hand wheel fitted on square end setting
10. Flow rate setting by means of external square end (H)
11. Pressure setting by means of external square end (H)
12. Flow rate setting locked by key (S)
13. Pressure setting locked by key (S)
14. Key length 43 mm
15. 2-nd shaft end for model 1 PV...V3...D

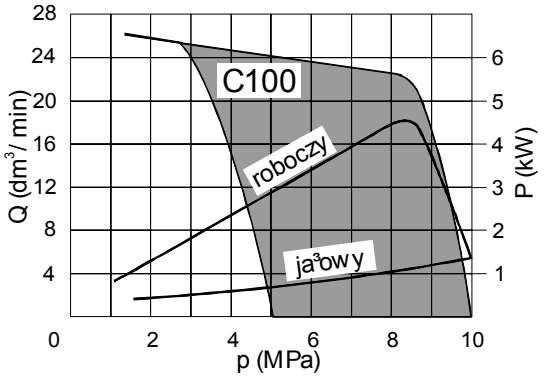
PERFORMANCE CURVES : measured at ν = 41 mm^2/s and T = 323 K and n = 1450 min^{-1}

Flow - operating pressure - drive power curves for delivering and zero stroke.

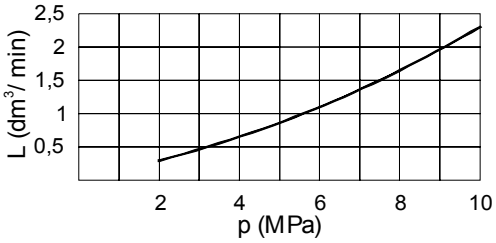




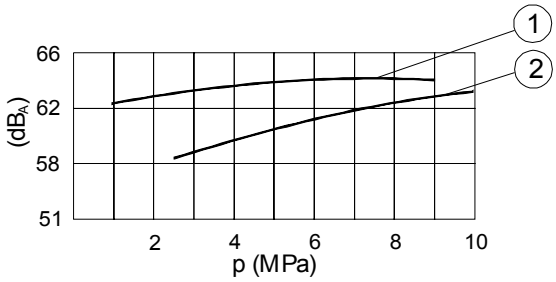




Leakage - operating pressure curve



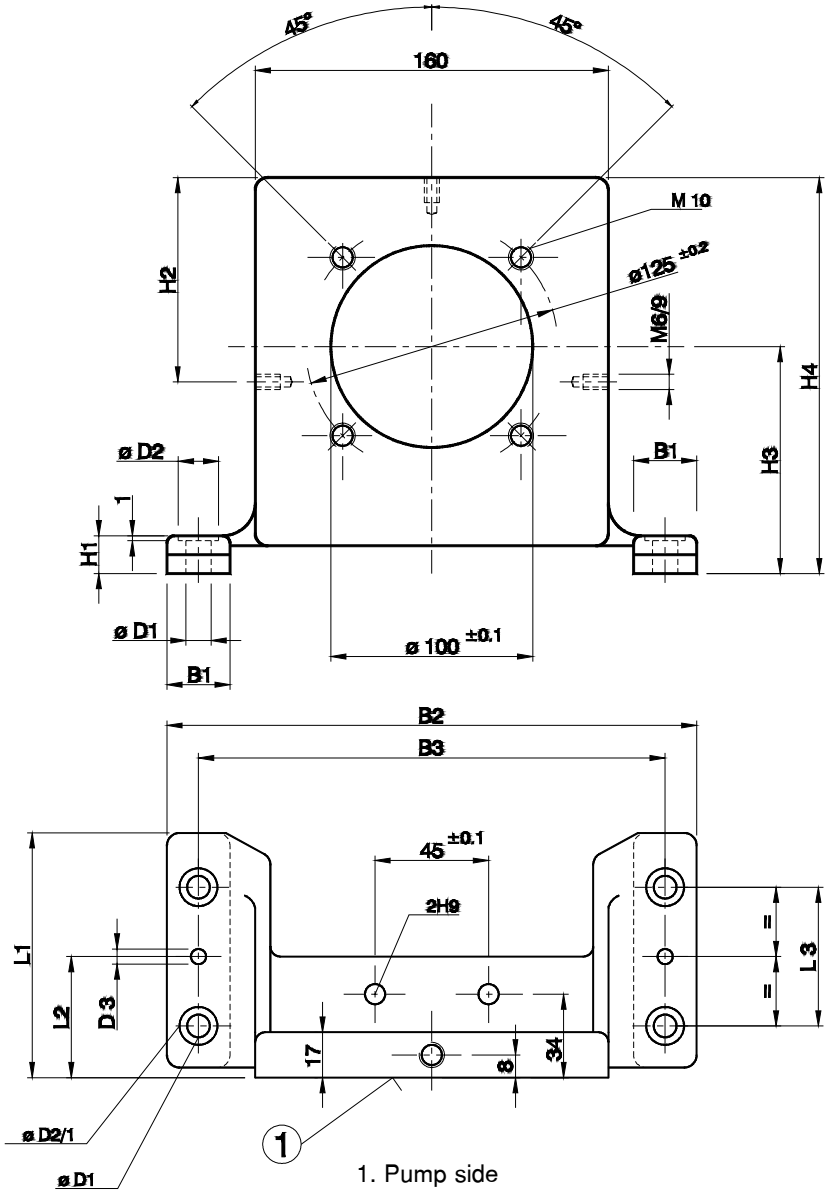
Noise level - operating pressure curves at zero stroke and delivering, measured at distance of 1 m from pump.



1 - noise level when delivering
2 - noise level at zero stroke

OVERALL AND CONNECTION DIMENSIONS FOR BRACKETS

Single - flange bracket - overall dimensions in mm

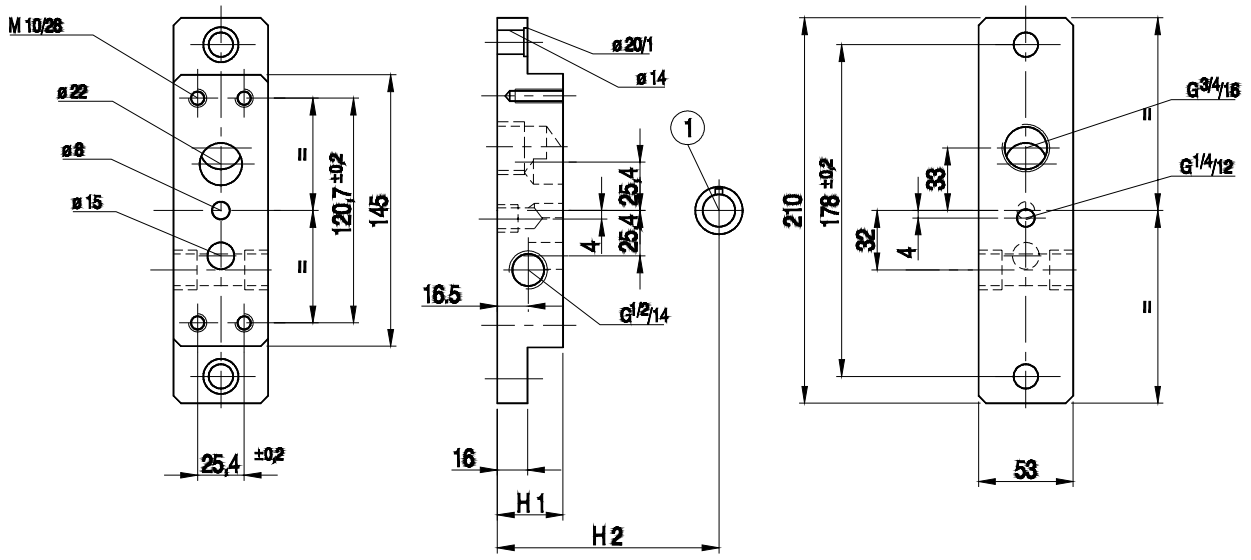


1. Pump side

Overall dimensions for single-flange mounting bracket related to motor size.

Drive power in kW	B1	B2	B3 ±0.2	D1	D2	D3	H1	H2±0.2	H3	H4	L1	L2±0.2	L3±0.2	Weight
1,1 ... 1,5	35	210	185	9	15	6+0,1	15	80	90	157	93	48	55	2,5 kg
2,2 ... 3	35	210	185	9	15	6+0,1	25	80	100	167	93	48	55	3,7 kg
4	35	210	185	9	15	6+0,1	37	80	112	179	93	48	55	4 kg
5,5 ... 7,5	46	276	230	14	20	8+0,1	15	128	132	212	113	58	80	6,4 kg

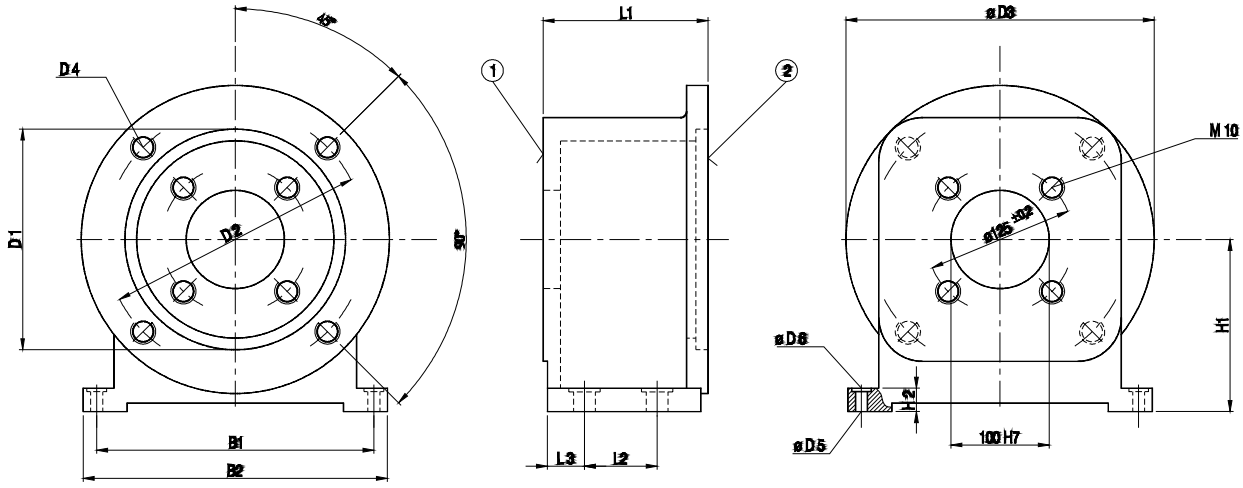
Subplate - overall dimensions in mm



1 - drive shaft of pump

Drive power in kW	H1 ±0.1	H2	Mass
1.1...1.5	36	90	2 kg
2.2...5.5	46	100	2.2 kg

Two-flanged bracket



1. Pump flange
2. Motor flange

Drive power in kW	B1 ±0.2	B2	D1 H10	D2 ±0.2	D3	D4	D5	D6	H1 ±0.2	H2	L1 ±0.2	L2	L3	Weight
0.55...1.5	180	210	130	165	200	M10	11	18	112	14	102	60	15	2.8 kg
2.2...4	220	250	180	215	250	M12	14	20	132	14	112	60	20	4 kg
5.5...7.5	260	290	230	265	304	M12	14	20	160	14	132	80	20	5.5 kg

HOW TO ORDER

Orders coded in the way showed below should be forwarded to the manufacturer.

1 PV		V3	+	/	25							1	*

Mounting method
Flange = 2
Subplate = 6

Series number
30 = 30
(30 - 39) - Installation and connection dimensions unchanged

Rotation direction :
Right = R
Left = L
Model with double shaft = D

Connection method
Threaded connections = 1
Subplate = 8

Sealing
For fluids on mineral oil base = M
For fluids on phosphate ester base = V

Pressure setting
With hexagon end screw = C
With square end screw = H
Lockable pressure regulator = S

Zero stroke pressure range
10 MPa zero stroke pressure = 100
6.3 MPa zero stroke pressure = 63
4.0 MPa zero stroke pressure = 40
2.5 MPa zero stroke pressure = 25

Flow setting
With hexagon end screw = A
With square end screw = H
Lockable flow regulator = S

Air bleed valve 1

Additional requirements in clear text (to be agreed with the manufacturer)

Coding example : 1PV2V3-20/25 R1MC100A1

PONAR WADOWICE S.A.
ul. Wojska Polskiego 29
34-100 Wadowice
tel. 033/ 823 39 43, 823 30 41
fax 033/ 873 48 80
e-mail: ponar@ponar-wadowice.pl

PONAR® wadowice

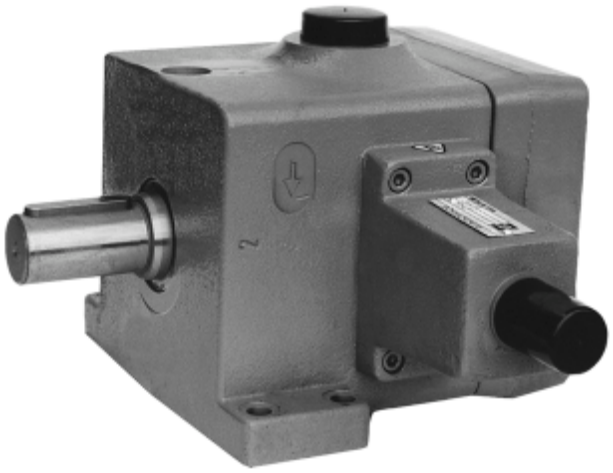
VANE PUMP TYPE V3/40

WK 144 618

04.1999r.

NG40	do 10 MPa	40 dm³/min

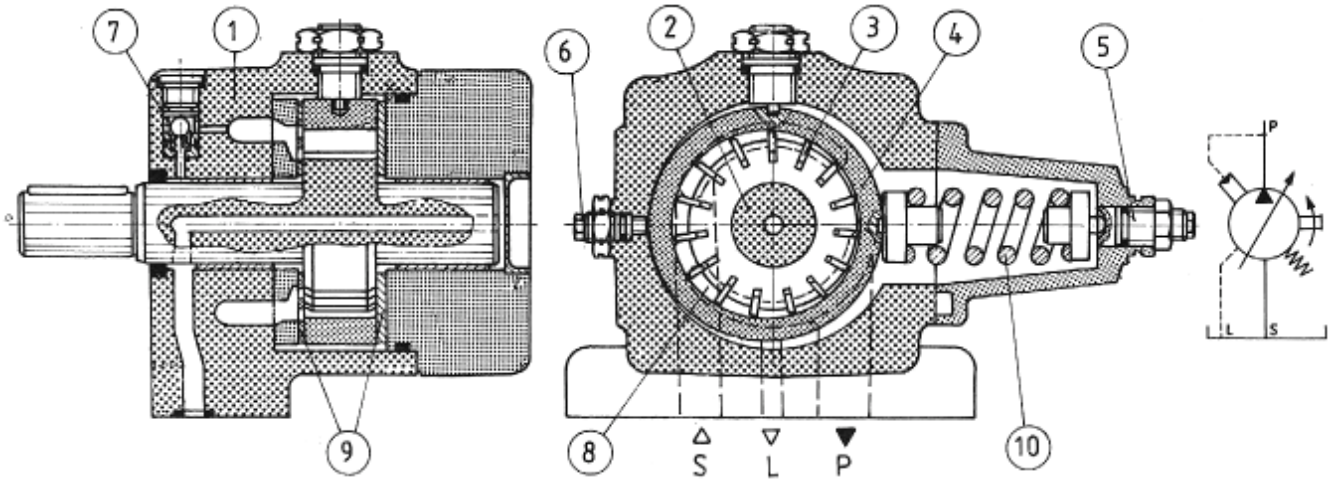
Vane pumps type PV serve to generate an oil flow in hydraulic systems.



ADVANTAGES

- easy commissioning by automatic air bleeding
- low noise level
- hydrodynamically lubricated bearings for long bearing life
- good sliding characteristics of control discs due to bronze coating and semi-fluid friction.

DESCRIPTION OF OPERATION



Hydraulic pumps type V3 are vane pumps with variable displacement and pressure control. Pumps type V3/40 are composed of a housing 1, rotor 2 with simple vanes 3, stator 4, pressure regulator 5, volume screw 6, valve for automatic air bleed 7 and control discs 9.

Suction and delivery

Two vanes 3, the rotor 2, the stator 4 and the discs 9 form the chambers for the transport of the fluid. By moving the rotor 2 to the right the chambers 8 increase, starting from the suction channel and they fill up with fluid. When these chambers have reached their maximum volume they are separated from the suction side by means of the control discs. When the rotor further turns to the right the chambers are connected to the pressure side. They decrease their volume and thus fluid is pushed to the pressure channel P and into the system. Volume setting screw 6 is designed for limiting the maximum flow of the pump.

Pressure setting

The circular stator ring is kept in an eccentric position by means of the spring 10. Maximum working pressure required in the system is adjusted by the spring 10. On reaching the set pressure the stator 4 (overcoming resistance of the spring 10) moves out of its eccentric position. The eccentricity decreases till the minimum flow replacing the leakage oil is obtained. After a pressure drop in the systam the stator 4 returns to the eccentric position and the pump delivers the full value of the set output flow.

Installation

Vane pumps type V3 can be installed in any desired position. The pump may be connected to hydraulic systems only by means of flexible lines.

Drive

The pump may be connected to motor only by means of a flexible coupling. All the coaxial conditions formulated by the coupling manufacturer must be maintained.
The shaft ends of both pump and motor may not transmit any longitudinal or radial forces.

Oil tank

The tank capacity must be properly selected so that the working temperature of oil do not exceed recommendations. If that is impossible a cooler must be installed.

Pipelines

The suction line should be designed so that the gives values of inlet pressure are not exceeded. The leakage lines should be fitted minimum 100 mm above the suction line and should be formed so that the leakages do not get immediately sucked back into the pump.
The suction lines and the leakage lines should be at least 200 mm apart. The pipe ends should be cut at a 45^{O} angle and should not reach within 50 mm of the tank bottom.

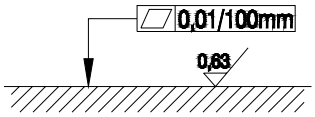
All pipelines even at the minimum oil level in the tank must be dipped minimum 50 mm in order to avoid the build-up of foam.

TECHNICAL DATA

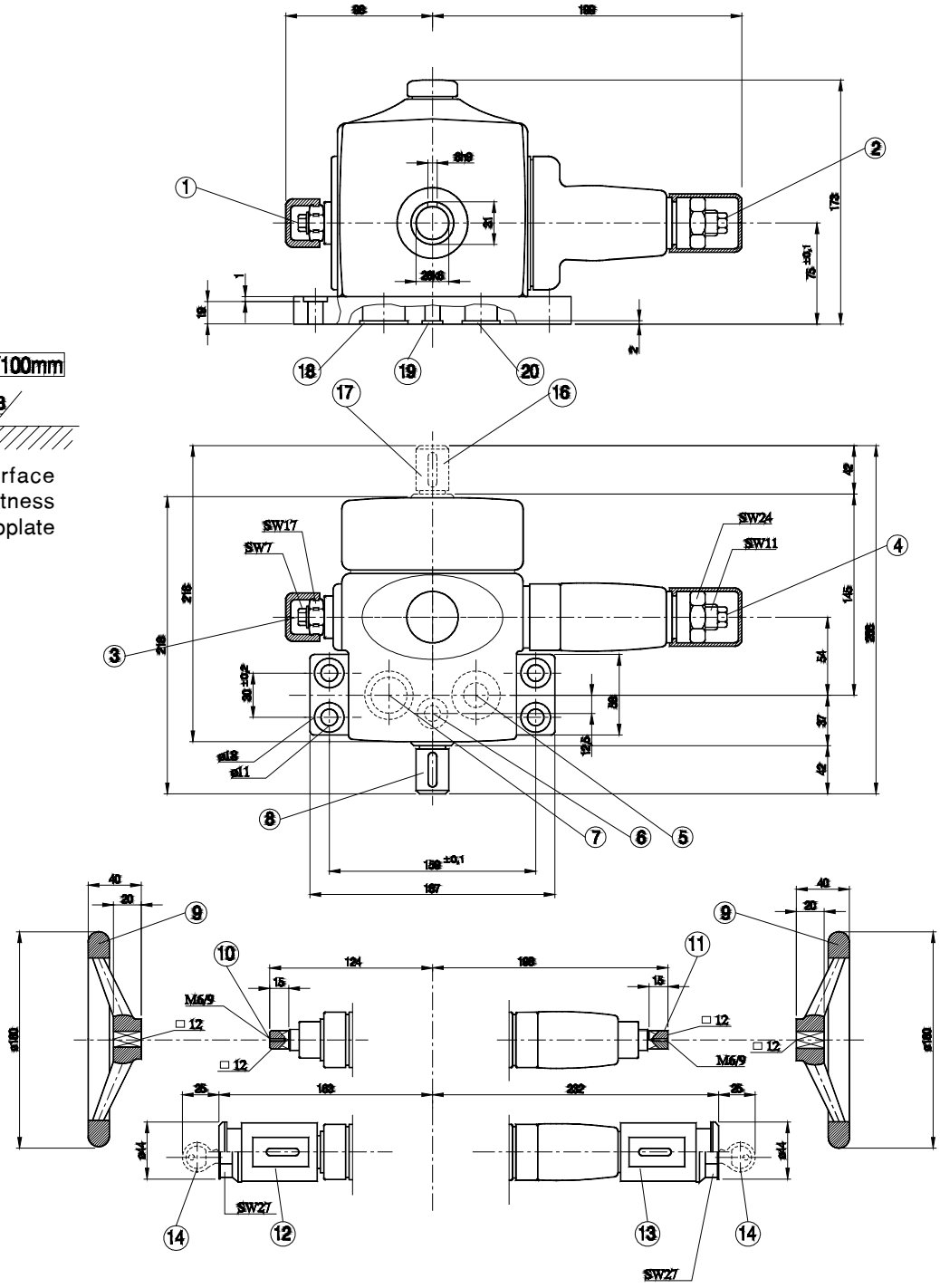
Hydraulic fluid		Mineral oil, phosphate ester
Nominal output flow	dm^3/ min	47 at n = 1450 min^{-1} p = 1 MPa
Inlet pressure	MPa	- 0,02 to + 0,5
Outlet pressure	MPa	max. 10
Leakage pressure	MPa	max. 0,2
Torque (drive shaft)	Nm	max 235
Revolution per minute	min^{-1}	1000 do 1800
Nominal viscosity range - at pzero stroke < 6.3 MPa - at pzero stroke > 6.3 MPa	 mm^2/ s mm^2/ s	 16 to 160 25 to 160
Working temperature (fluid in a tank)	K	313 - 328
Fluid temperature range	K	263 - 343
Filtration	µm	16 (recommended 10 for long working life)
Pressure range related to spring force	MPa	C 25 from 1,2 to 2,5 C 40 from 2,0 to 4,0 C 63 from 3,0 to 6,3 C100 from 5,0 to 10,0
Mounting method		flange mounting
Direction		right
Pipe connections		threaded connections
Shaft loading		radial or axial loads can not be transferred
Weight	kg	26,5

OVERALL AND MOUNTING DIMENSIONS

Pump for subplate mounting - overall dimensions in mm



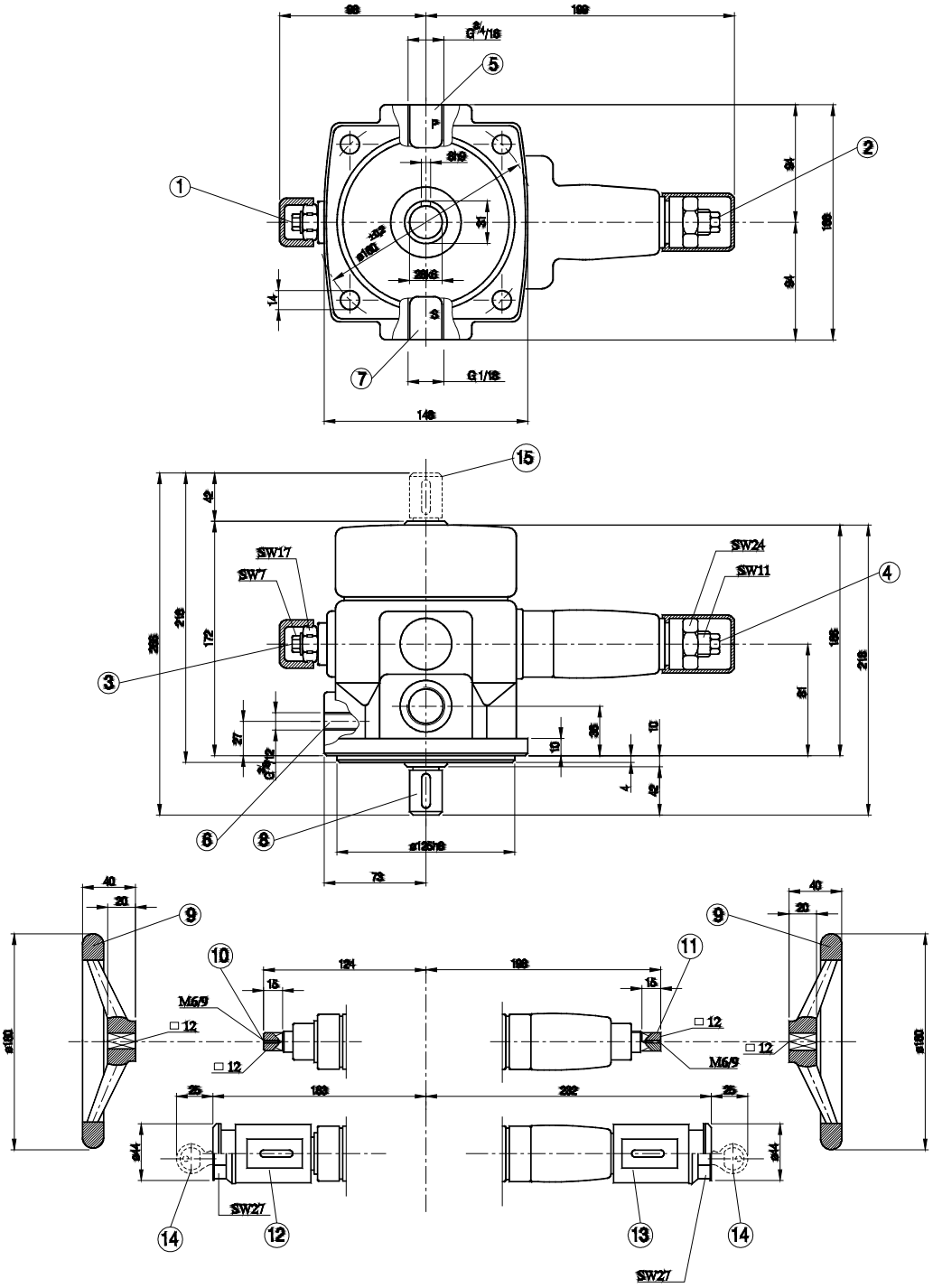
Admissible surface roughness and flatness deviation for a subplate face.



1. Flow rate setting
   - rotation to the right decreases flow rate
   - rotation to the left increases flow rate
2. Pressure setting
   - rotation to the right increases operating pressure
   - rotation to the left decreases operating pressure
3. Flow rate setting (by means of screw A)
4. Pressure setting (by means of screw C)
5. Pressure port
6. Leakage port
7. Suction port
8. Drive shaft for model with right rotation
9. Accessories (against special order and agreed with themanufacturer). Setting by means of hand wheel fitted on square end setting
10. Flow rate setting by means of external square end (H)
11. Pressure setting by means of external square end (H)
12. Flow rate setting locked by key (S)
13. Pressure setting locked by key (S)
14. Key length 43 mm
15. Interface
16. Drive shaft for model with left rotation
17. 2-nd shaft end for model 1PV...V3...D
18. O-ring 39.3 × 2.6
19. O-ring 15.6 × 2.6
20. O-ring 29.8 × 2.6

OVERALL AND MOUNTING DIMENSIONS

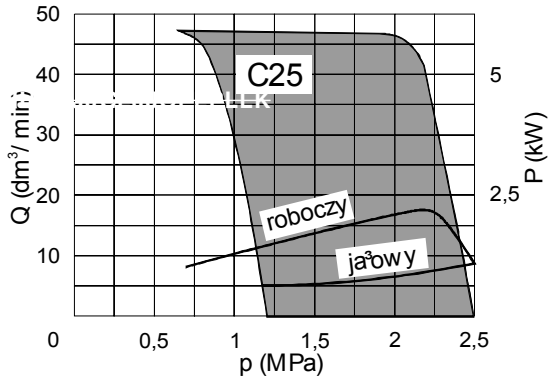
Pump for flange mounting - overall dimensions in mm

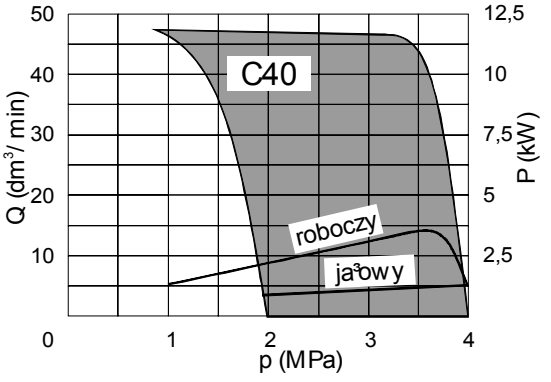


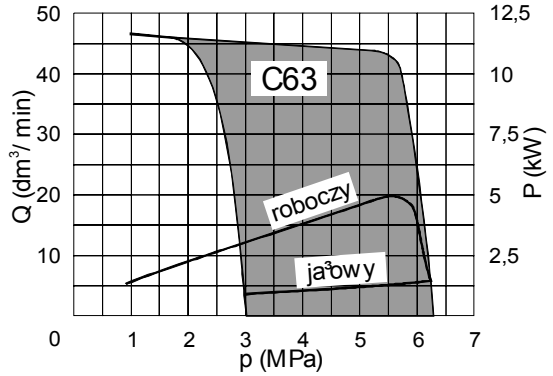
1. Flow rate setting
   - rotation to the right decreases flow rate
   - rotation to the left increases flow rate
2. Pressure setting
   - rotation to the right increases operating pressure
   - rotation to the left decreases operating pressure
3. Flow rate setting (by means of screw A)
4. Pressure setting (by means of screw C)
5. Pressure port
6. Leakage port
7. Suction port
8. Drive shaft for model with right rotation
9. Accessories (against special order and agreed with the manufacturer). Setting by means of hand wheel fitted on square end setting
10. Flow rate setting by means of external square end (H)
11. Pressure setting by means of external square end (H)
12. Flow rate setting locked by key (S)
13. Pressure setting locked by key (S)
14. Key length 43 mm
15. 2-nd shaft end for model 1PV...V3...D

PERFORMANCE CURVES : measured at ν = 41 mm^2/s and T = 323 K and n = 1450 min^{-1}

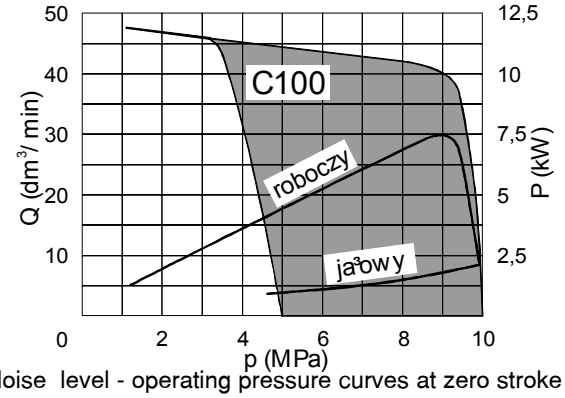
Flow - operating pressure - drive power curves for delivering and zero stroke.



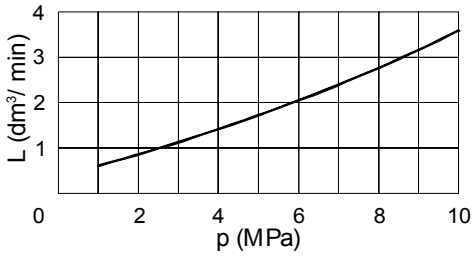


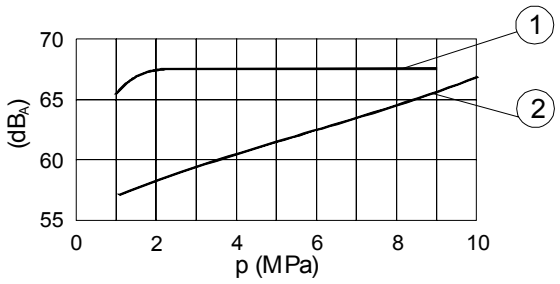


Leakage - operating pressure curve



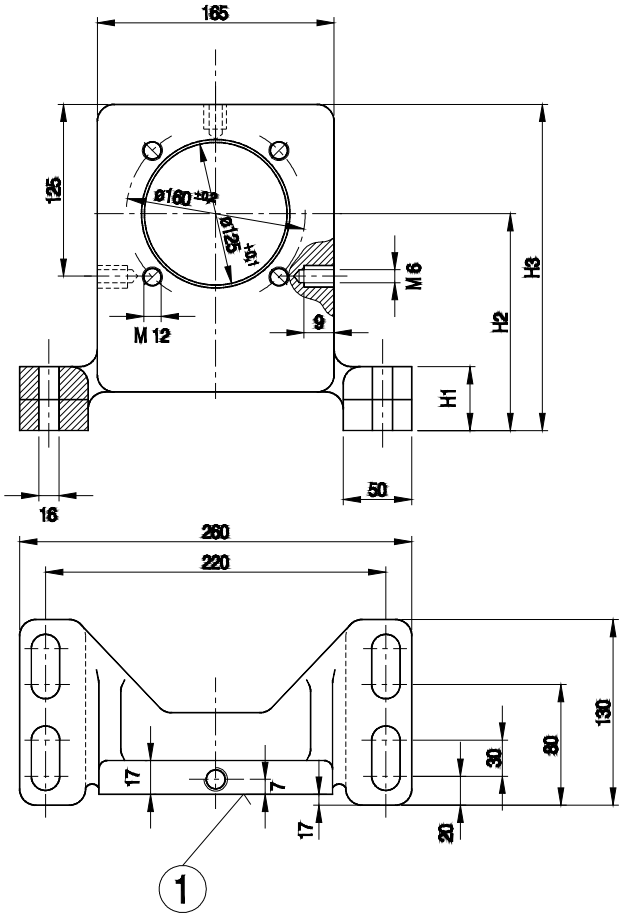
Noise level - operating pressure curves at zero stroke and delivering, measured at distance of 1 m from pump.





1 - noise level when delivering
2 - noise level at zero stroke

Single-flange bracket - overall dimensions in mm

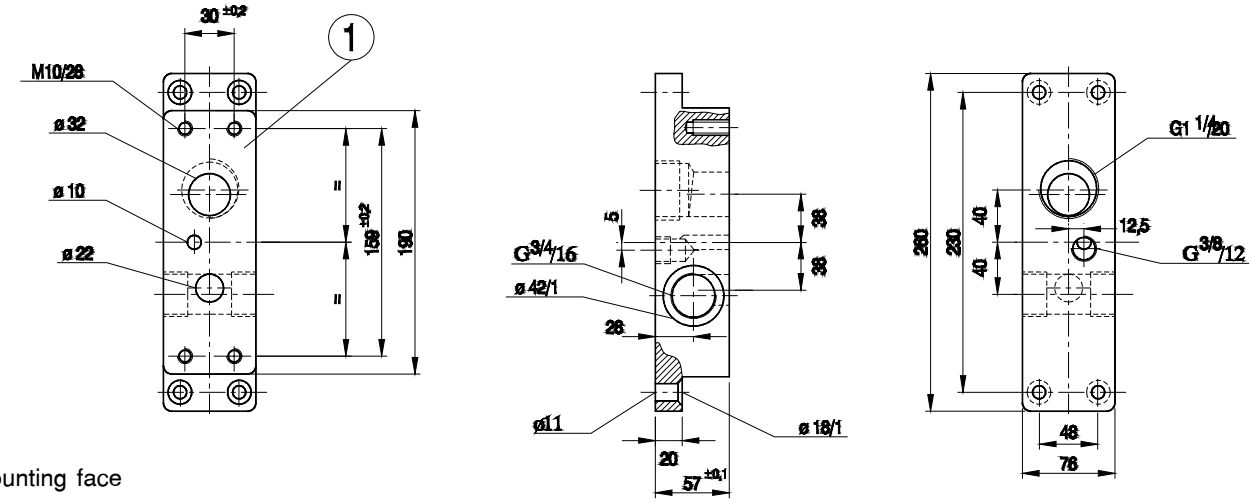


1 - pump side

Overall dimensions for single-flange bracket related to motor size

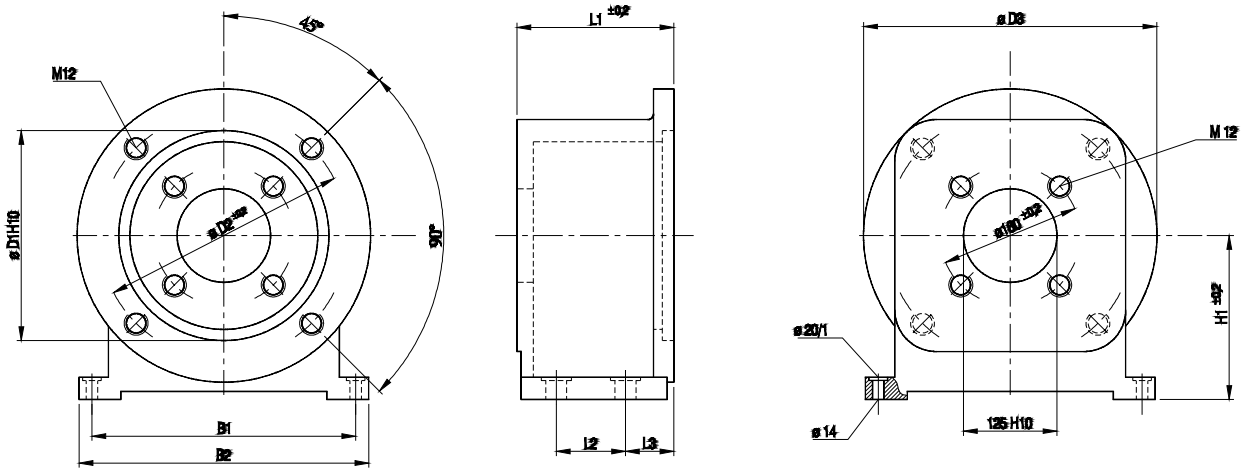
Drive power in kW	H1	H2	H3
5,5 ... 7,5	15	132 ±0,2	207
11 ... 15	43	160 ±0,2	235
18,5 ... 22	63	180 ±0,2	255

Subplate - overall dimensions in mm



1- mounting face

Two-flange bracket - overall dimensions



1- pump flange
2. motor flange

Drive power in kW	B1$^{\pm 0.2}$	B2	D1	D2	D3	H1	L1	L2	L3	Weight
2,2 ... 4	220	250	180H10	215	250	132	122	60	42	4 kg
5,5 ... 7,5	260	290	230H10	265	304	160	142	80	32	5,5 kg

HOW TO ORDER

Orders coded in the way showed below should be forwarded to the manufacturer.

1 PV		V3–	/40								*

Mounting method
Flange = 2
Subplate = 6

Series number
20 = 20
(20 - 29) - Installation and connection dimensions unchanged

Rotation direction :
Right = R
Left = L
Model with double shaft = D

Connection method
Threaded connections = 1
Subplate = 8

Sealing
For fluids on mineral oil base = M
For fluids on phosphate ester base = V

Pressure setting
With hexagon end screw = C
With square end scr = H
Lockable pressure regulator = S

Zero stroke pressure range
10 MPa zero stroke pressure = 100
6.3 MPa zero stroke pressure = 63
4.0 MPa zero stroke pressure = 40
2.5 MPa zero stroke pressure = 25

Flow setting
With hexagon end screw = A
With square end screw = H
Lockable flow regulator = S

Air bleed valve = 1

Additional requirements in clear text (to be agreed with the manufacturer)

Coding example : 1PV2V3-20/40R1MC100A1

PONAR WADOWICE S.A.
ul. Wojska Polskiego 29
34-100 Wadowice
tel. 033/ 823 39 43, 823 30 41
fax 033/ 873 48 80
e-mail: ponar@ponar-wadowice.pl

PONAR® wadowice

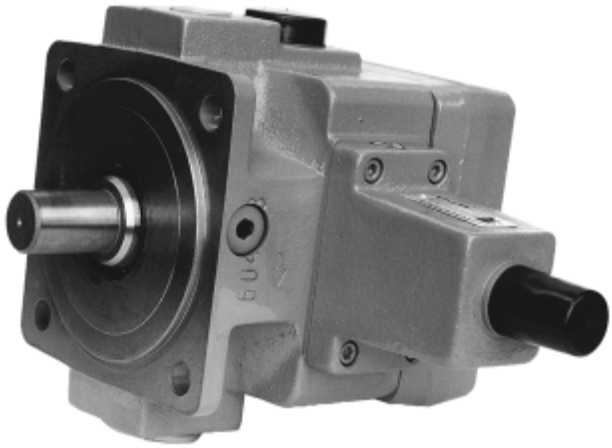
VANE PUMP TYPE V3/63

WK 144 619

04. 2001r.

Size 63	up to 10MPa	63 dm³/min

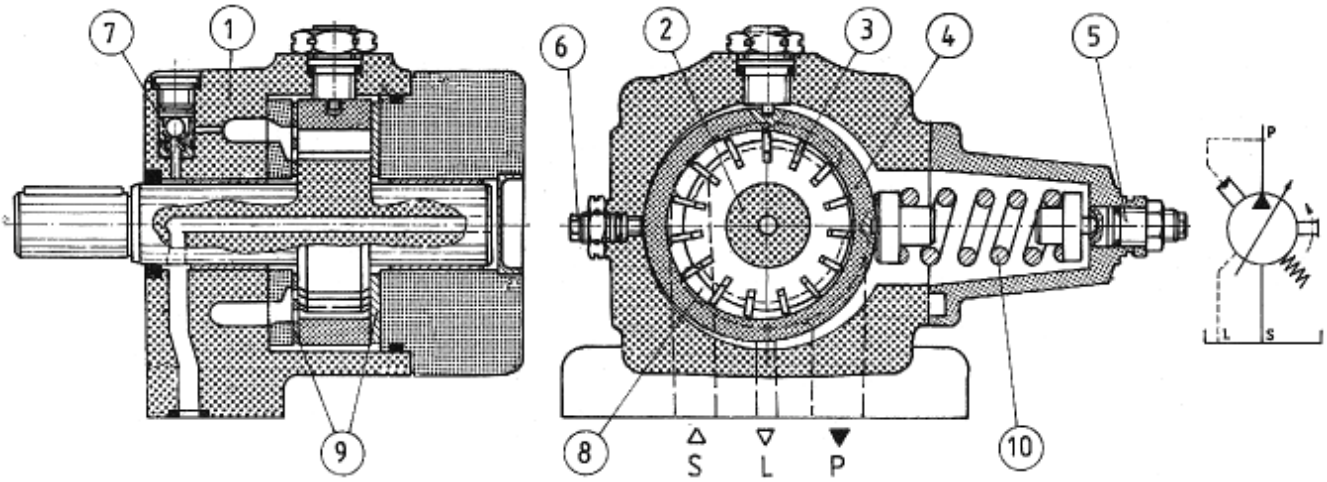
Vane pumps type PV serve to generate an oil flow in hydraulic systems.



ADVANTAGES

- easy commissioning by automatic air bleeding
- low noise level
- hydrodynamically lubricated bearings for long bearing life
- good sliding characteristics of control discs due to bronze coating and semi-fluid friction.

DESCRIPTION OF OPERATION



Hydraulic pumps type V3 are vane pumps with variable displacement and pressure control. Pumps type V3/63 are composed of a housing 1, rotor 2 with simple vanes 3, stator 4, pressure regulator 5, volume screw 6, valve for automatic air bleed 7 and control discs 9.

Suction and delivery

Two vanes 3, the rotor 2, the stator 4 and the discs 9 form the chambers for the transport of the fluid. By moving the rotor 2 to the right the chambers 8 increase, starting from the suction channel and they fill up with fluid. When these chambers have reached their maximum volume they are separated from the suction side by means of the control discs. When the rotor further turns to the right the chambers are connected to the pressure side. They decrease their volume and thus fluid is pushed to the pressure channel P and into the system. Volume setting screw 6 is designed for limiting the maximum flow of the pump.

Pressure setting

The circular stator ring is kept in an eccentric position by means of the spring 10. Maximum working pressure required in the system is adjusted by the spring 10. On reaching the set pressure the stator 4 (overcoming resistance of the spring 10) moves out of its eccentric position. The eccentricity decreases till the minimum flow replacing the leakage oil is obtained. After a pressure drop in the systam the stator 4 returns to the eccentric position and the pump delivers the full value of the set output flow.

Installation

Vane pumps type V3 can be installed in any desired position. The pump may be connected to hydraulic systems only by means of flexible lines.

Drive

The pump may be connected to motor only by means of a flexible coupling. All the coaxial conditions formulated by the coupling manufacturer must be maintained.
The shaft ends of both pump and motor may not transmit any longitudinal or radial forces.

Oil tank

The tank capacity must be properly selected so that the working temperature of oil do not exceed recommendations. If that is impossible a cooler must be installed.

Pipelines

The suction line should be designed so that the gives values of inlet pressure are not exceeded. The leakage lines should be fitted minimum 100 mm above the suction line and should be formed so that the leakages do not get immediately sucked back into the pump.
The suction lines and the leakage lines should be at least 200 mm apart. The pipe ends should be cut at a 45^{O} angle and should not reach within 50 mm of the tank bottom.

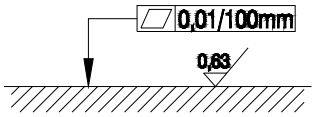
All pipelines even at the minimum oil level in the tank must be dipped minimum 50 mm in order to avoid the build-up of foam.

TECHNICAL DATA

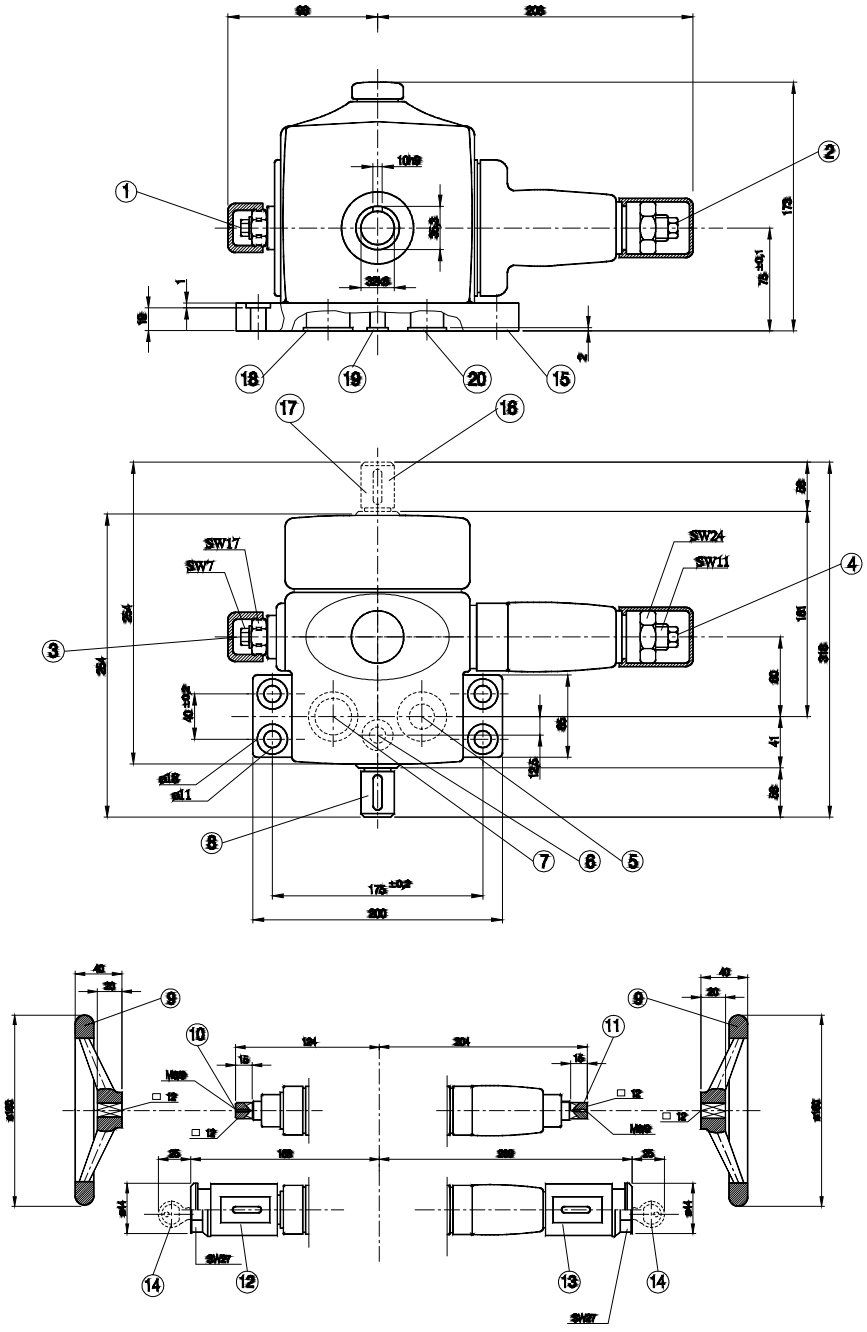
Hydraulic fluid		Mineral oil, phosphate ester
Nominal output flow	dm^3/min	67 at n = 1450 min^{-1} p = 1 MPa
Inlet pressure	MPa	- 0.02 to + 0.5
Outlet pressure	MPa	max 10
Leakage pressure	MPa	max 0.2
Torque (drive shaft)	Nm	max 353
Revolution per minute	min^{-1}	1000 to 1 800
Nominal viscosity range - at $p_{zero\ stroke}$ < 6.3 MPa - at $p_{zero\ stroke}$ > 6.3 MPa	 mm^2/s mm^2/s	 16 to 160 25 to 160
Working temperature (fluid in a tank)	K	313 - 328
Fluid temperature range	K	263 - 343
Filtration	μm	16 (recommended 10 for long working life)
Pressure range related to spring force	MPa	C 25 from 1.2 to 2.5 C 40 from 2.0 to 4.0 C 63 from 3.0 to 6.3 C 100 from 5.0 to 10.0
Rotation direction		right (or left for 1 PV6 only)
Mounting method		flange or subplate mounting
Pipe connections		threaded connections
Shaft loading		radial or axial loads can not be transferred
Weight	kg	29.5 (1 PV2), 30.5 (1 PV6)

OVERALL AND MOUNTING DIMENSIONS

Pump for subplate mounting - overall dimensions in mm



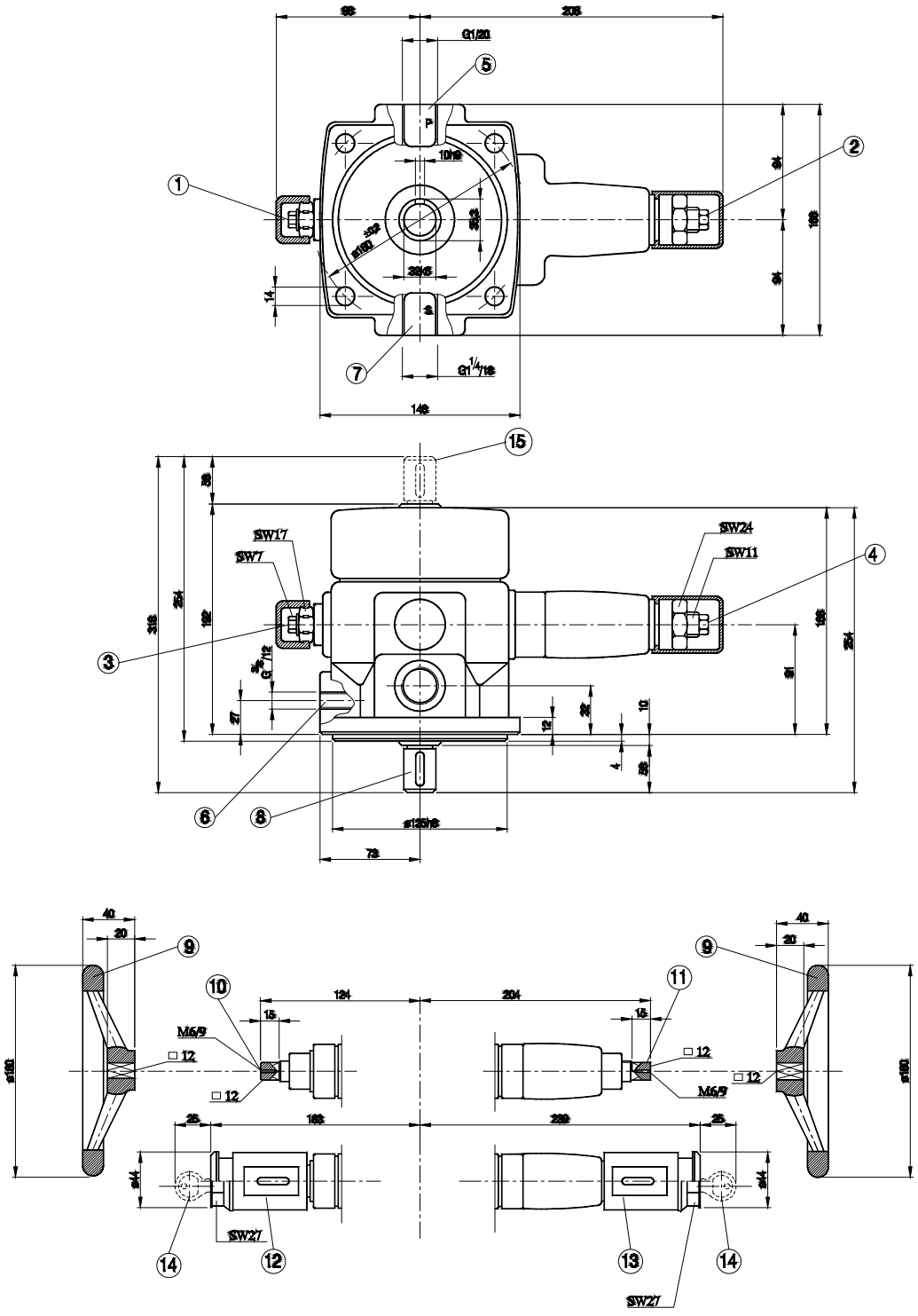
Admissible surface roughness and flatness deviation for a subplate face.



1. Flow rate setting
   - rotation to the right decreases flow rate
   - rotation to the left increases flow rate
2. Pressure setting
   - rotation to the right increases operating pressure
   - rotation to the left decreases operating pressure
3. Flow rate setting (by means of screw A)
4. Pressure setting (by means of screw C)
5. Pressure port
6. Leakage port
7. Suction port
8. Drive shaft for model with right rotation
9. Accessories (against special order and agreed with the manufacturer). Setting by means of hand wheel fitted on square end setting
10. Flow rate setting by means of external square end (H)
11. Pressure setting by means of external square end (H)
12. Flow rate setting locked by key (S)
13. Pressure setting locked by key (S)
14. Key length 43 mm
15. Interface
16. Drive shaft for model with left rotation
17. 2-nd shaft end for model 1PV...V3...D
18. O-ring 44.1 × 2.6
19. O-ring 15.6 × 2.6
20. O-ring 34.6 × 2.6

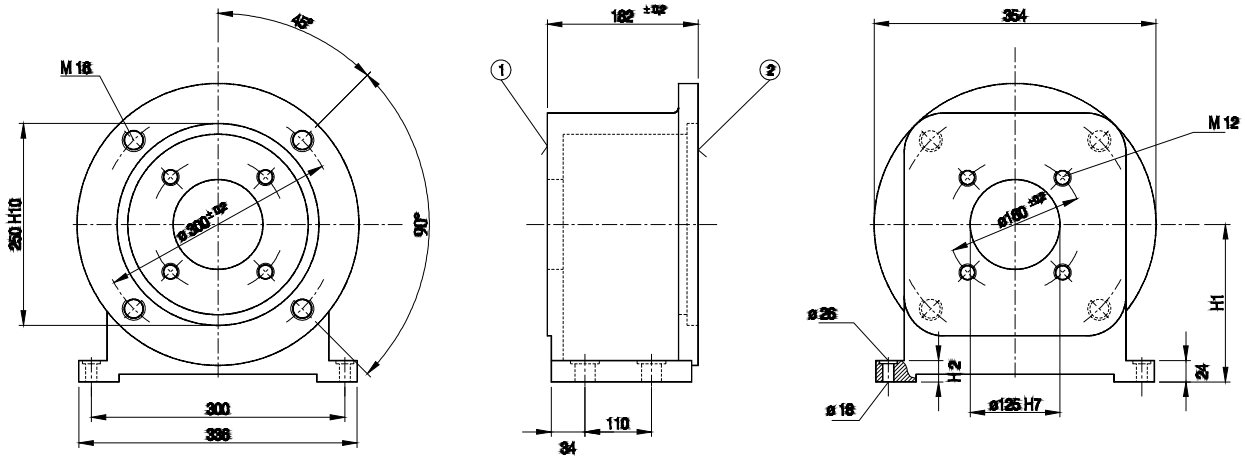
OVERALL AND MOUNTING DIMENSIONS

Pump for flange mounting - overall dimensions in mm



1. Flow rate setting
   - rotation to the right decreases flow rate
   - rotation to the left increases flow rate
2. Pressure setting
   - rotation to the right increases operating pressure
   - rotation to the left decreases operating pressure
3. Flow rate setting (by means of screw A)
4. Pressure setting (by means of screw C)
5. Pressure port
6. Leakage port
7. Suction port
8. Drive shaft for model with right rotation
9. Accessories (against special order and agreed with the manufacturer). Setting by means of hand wheel fitted on square end setting
10. Flow rate setting by means of external square end (H)
11. Pressure setting by means of external square end (H)
12. Flow rate setting locked by key (S)
13. Pressure setting locked by key (S)
14. Key length 43 mm
15. 2-nd shaft end

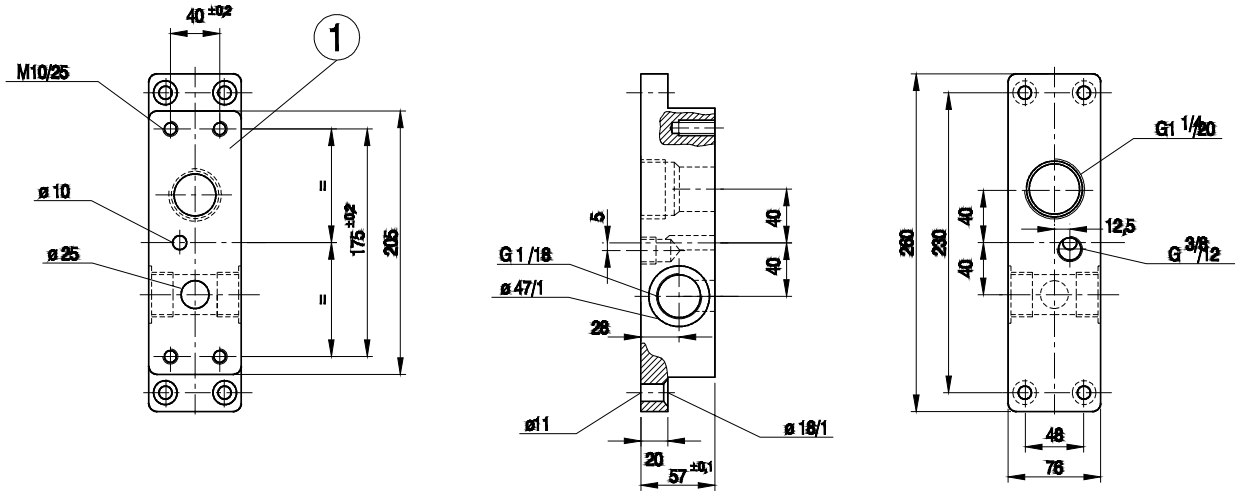
Two - flange bracket - overall dimensions in mm



1 - pump side
2 - motor side

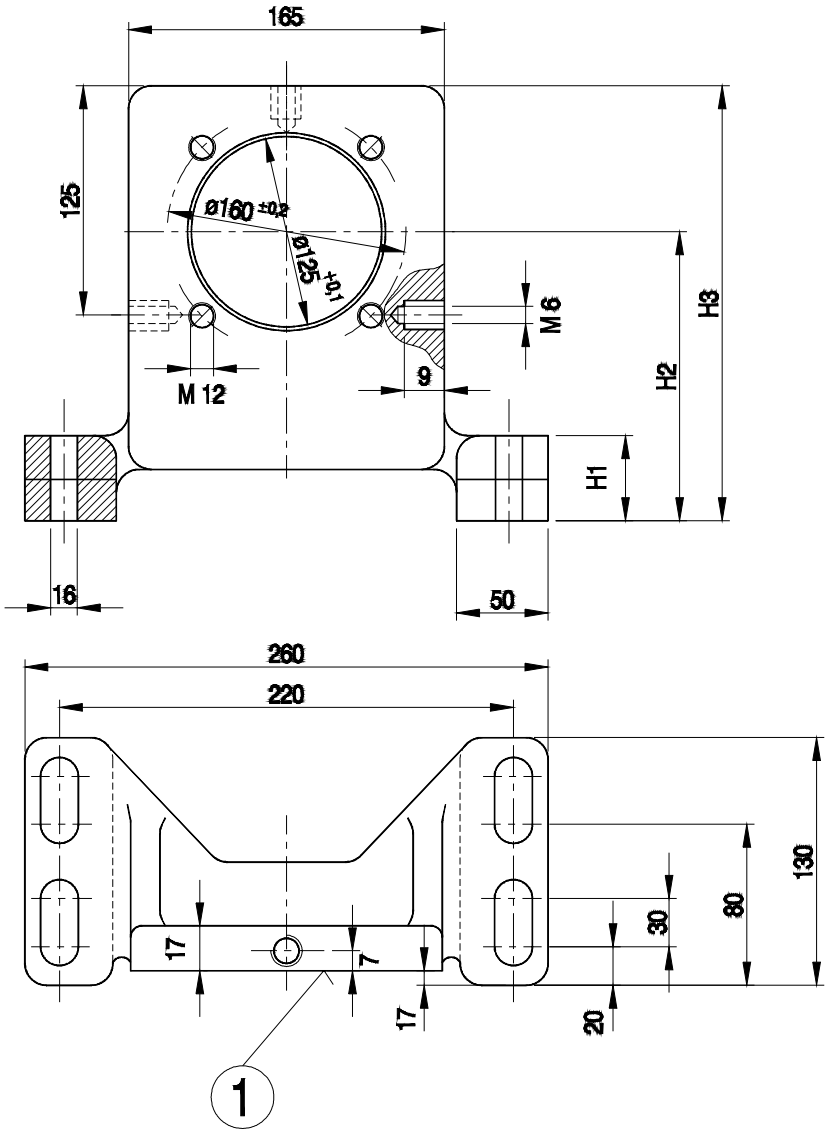
Motor power in kW	Weight
11..... 15	10 kg

Subplate - overall dimensions in mm



1 - pump face

Single-flange bracket - overall dimensions in mm



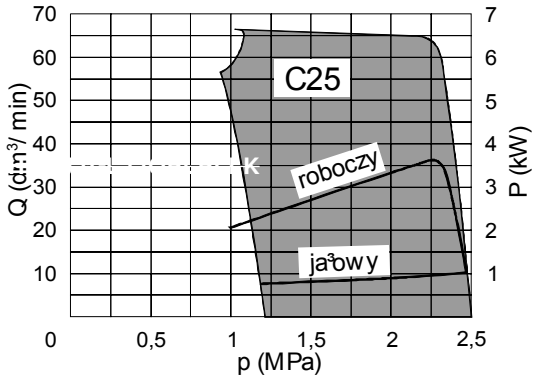
1 - pump side

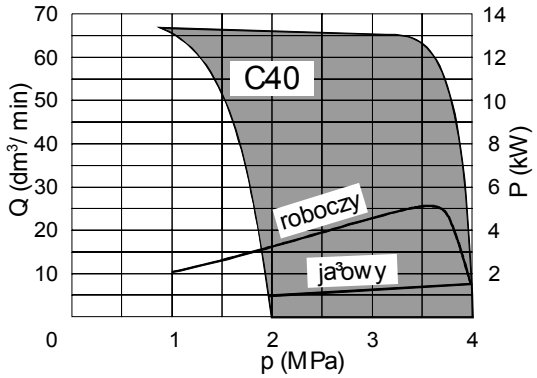
Overall dimensions for single-flange bracket related to motor size

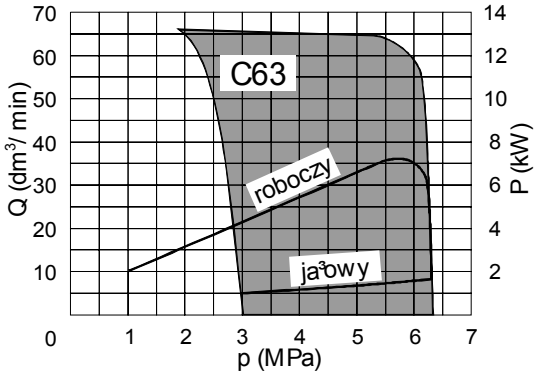
Drive power in kW	H1	H2$^{\pm 0.2}$	H3
5.5.....7.5	15	132	207
11.....15	43	160	235
18.5.....22	63	180	255

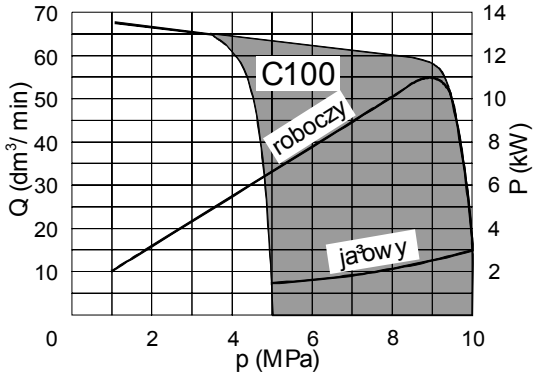
PERFORMANCE CURVES : measured at ν = 41 mm^2/s and T = 323 K and n = 1450 min^{-1}

Flow - operating pressure - drive power curves for delivering and zero stroke.

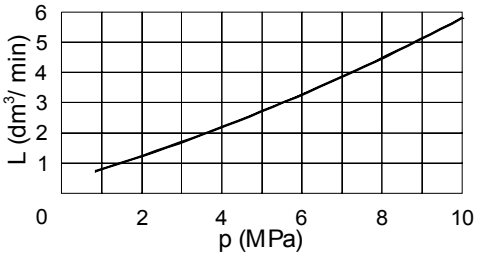




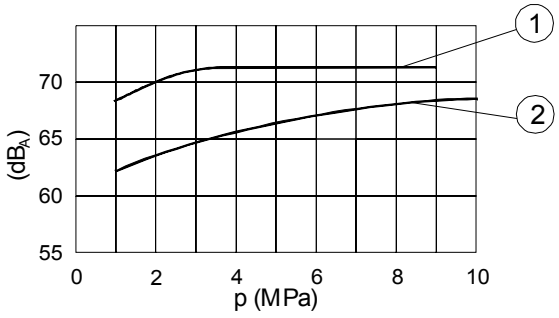




Leakage - operating pressure curve



Noise level - operating pressure curves at zero stroke and delivering, measured at distance of 1 m from pump.



1 - noise level when delivering
2 - noise level at zero stroke

HOW TO ORDER

Orders coded in the way showed below should be forwarded to the manufacturer.

1 PV		V3–	/63							1	*

Mounting method
Flange = 2
Subplate = 6

Series number
20 = 20
(20 - 29) - Installation and connection dimensions unchanged

Rotation direction :
Right = R
Left = L
Model with double shaft = D

Connection method
Threaded connections = 1
Subplate = 8

Sealing
For fluids on mineral oil base = M
For fluids on phosphate ester base = V

Pressure setting
With hexagon end screw = C
With square end screw = H
Lockable pressure regulator = S

Zero stroke pressure range
10 MPa zero stroke pressure = 100
6.3 MPa zero stroke pressure = 63
4.0 MPa zero stroke pressure = 40
2.5 MPa zero stroke pressure = 25

Flow setting
With hexagon end screw = A
With square end screw = H
Lockable flow regulator = S

Air bleed valve

Additional requirements in clear text (to be agreed with the manufacturer)

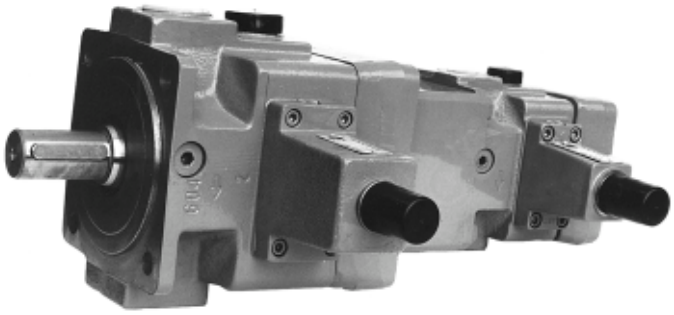
Coding example : 1PV2V3-20/63 R1MC100A1

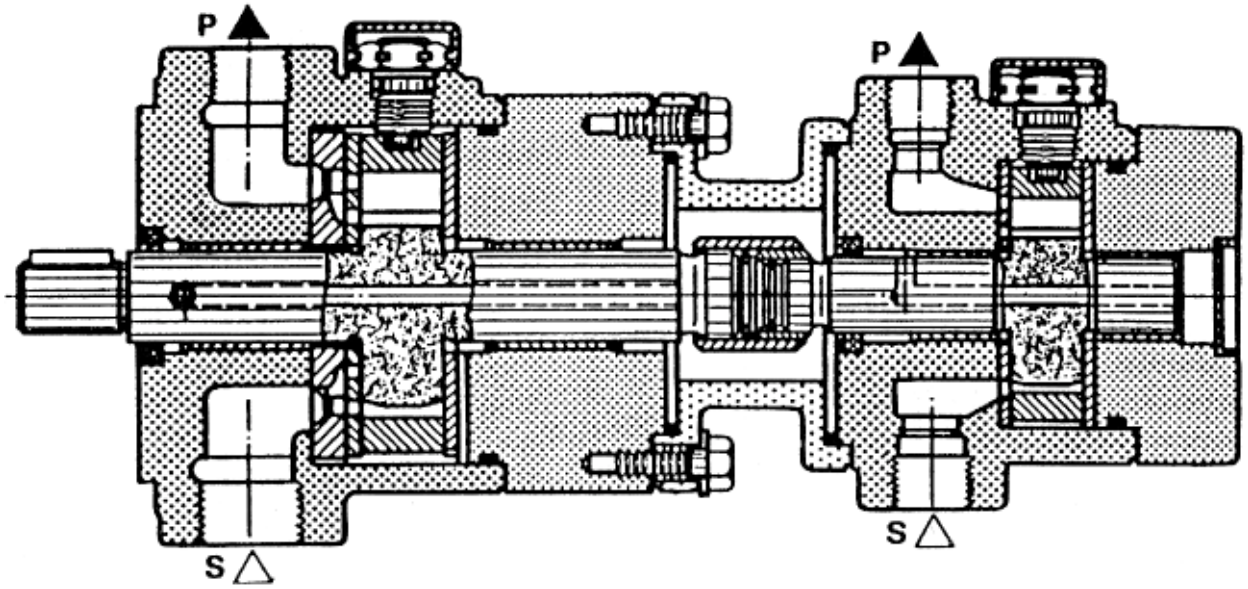
PONAR WADOWICE S.A.
ul. Wojska Polskiego 29
34-100 Wadowice
tel. 033/ 823 39 43, 823 30 41
fax 033/ 873 48 80
e-mail: ponar@ponar-wadowice.pl

PONAR® wadowice

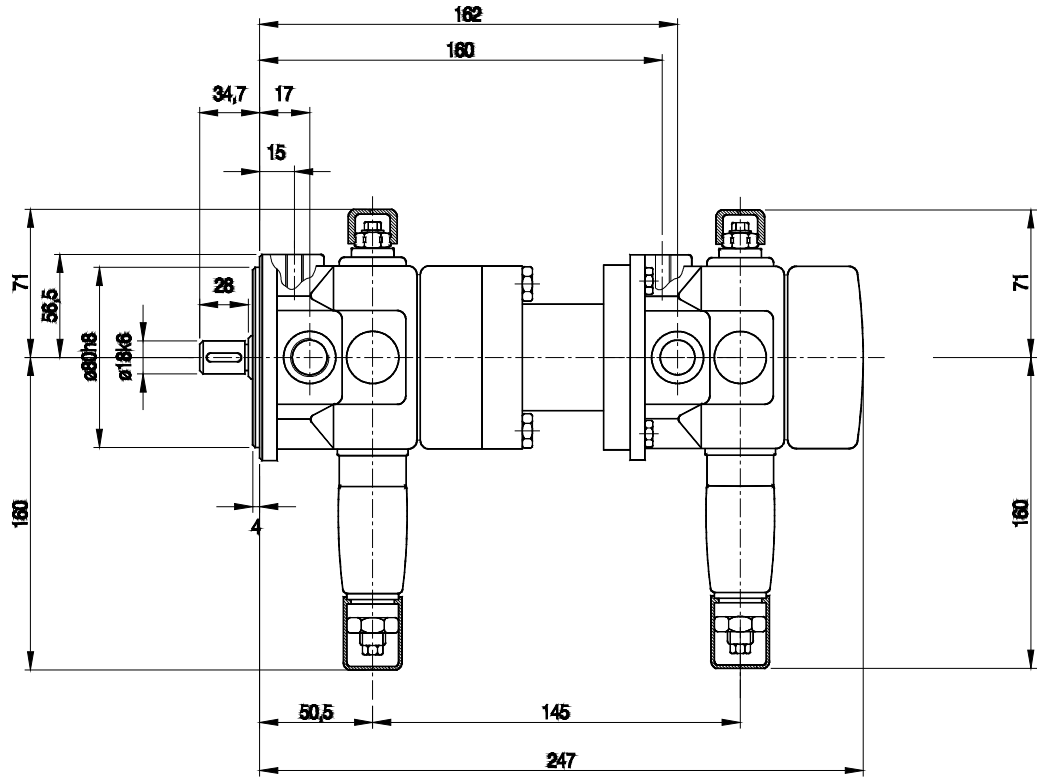
PONAR wadowice	Variable displacement vane pump Pump combination V3 ... + V3 ...	WK 470 020
	up to 10 MPa	04.1999r.

The pump combination V3 + V3 is composed of two variable displacement vane pumps.
The front pump is flange or subplate mounted. Both pumps are driven from one common shaft. Their delivery flow var-ies from Q = 0 to Q max as required by the user. Variable flow displacement is gained by means of the pressure compen-sator. Because of this, loss of power in the circuit is kept to a minimum.
For further details on the individual pumps see the data cards of pumps V3.

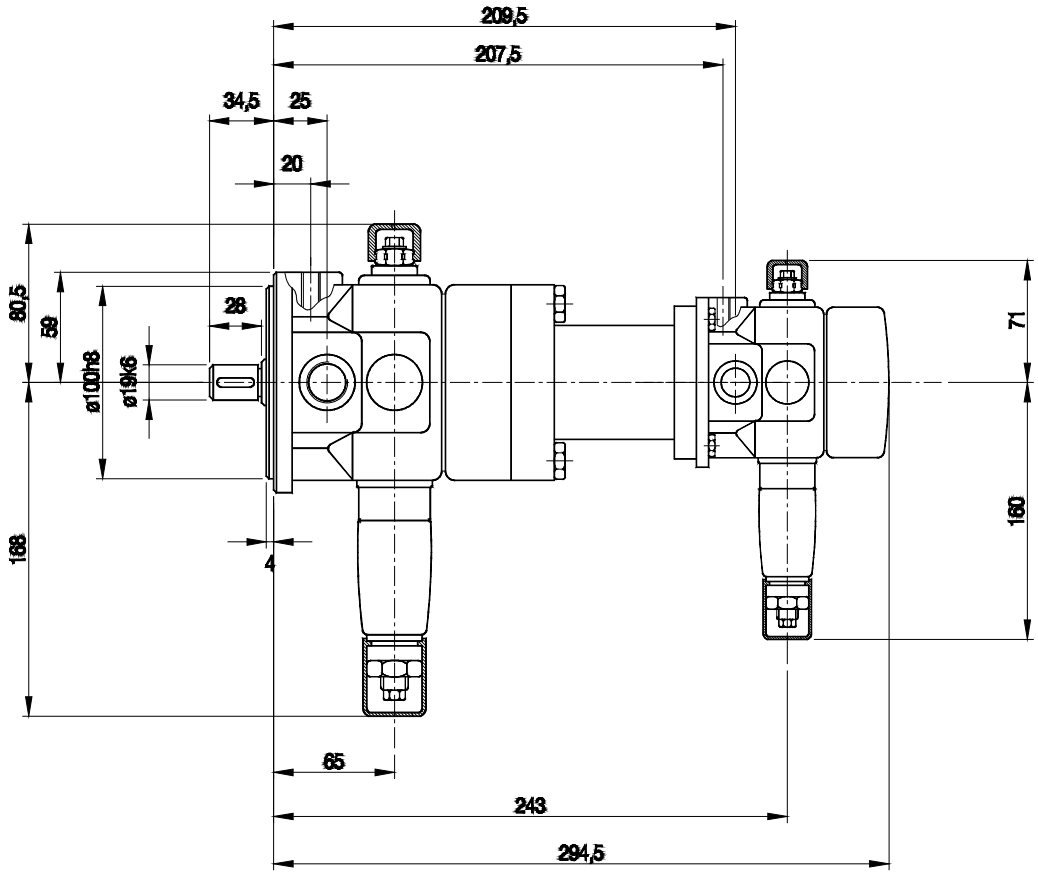




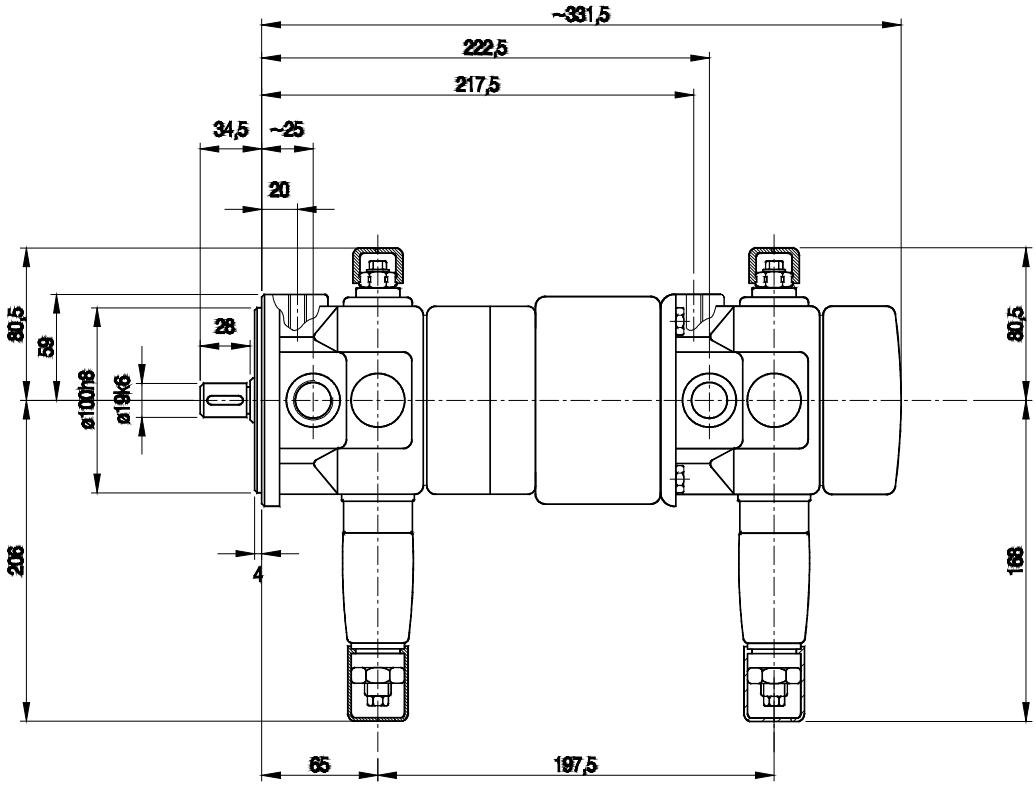
Overall dimensions for pump combination V3/12 + V3/12



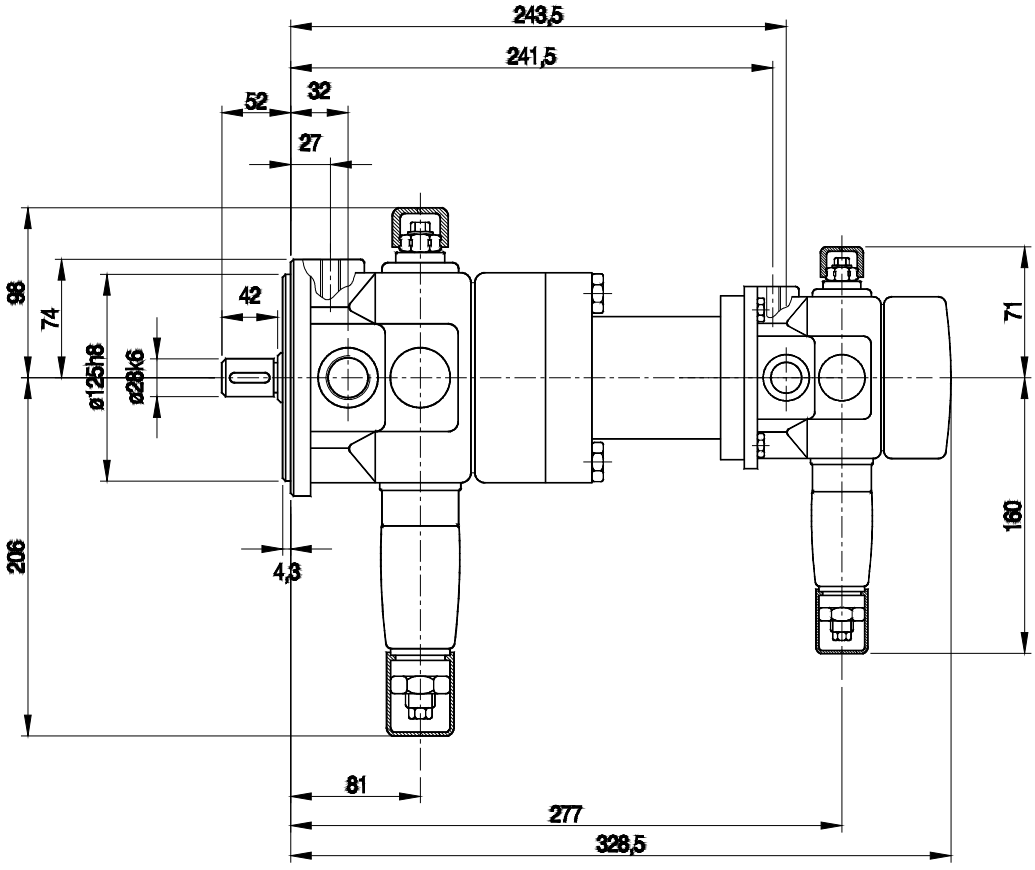
Overall dimensions for pump combination V3/25 + V3/12



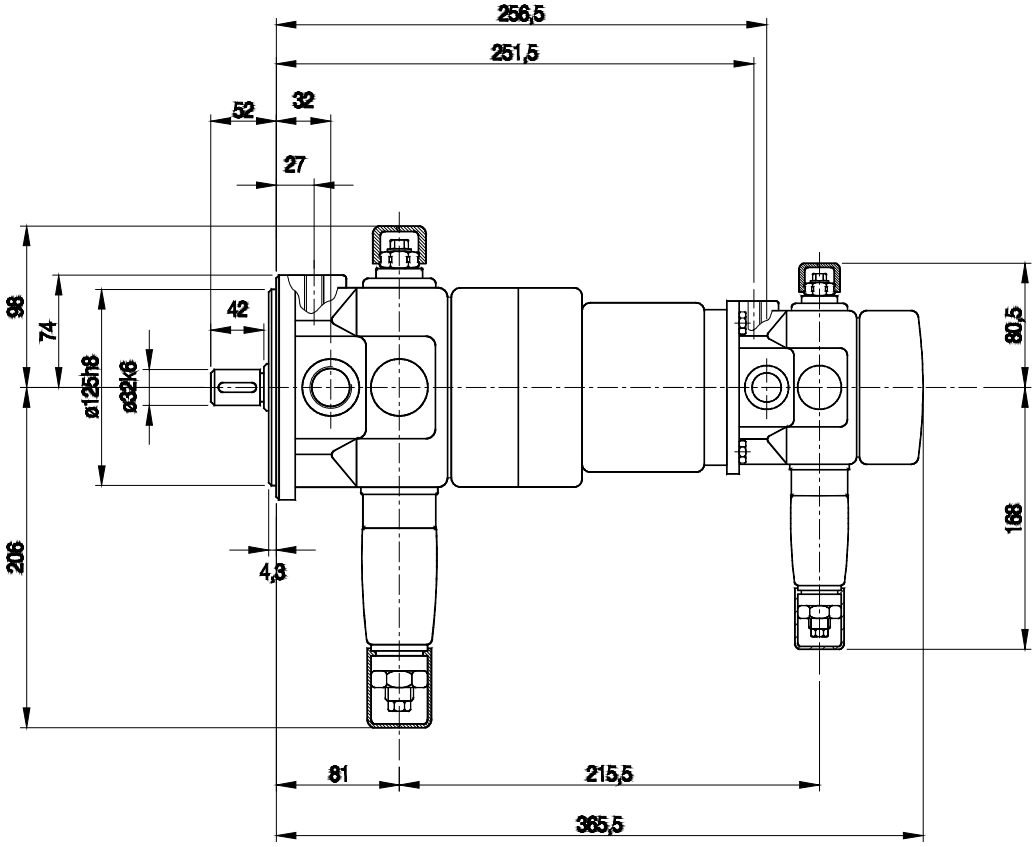
Overall dimensions for pump combination V3/25 + V3/25



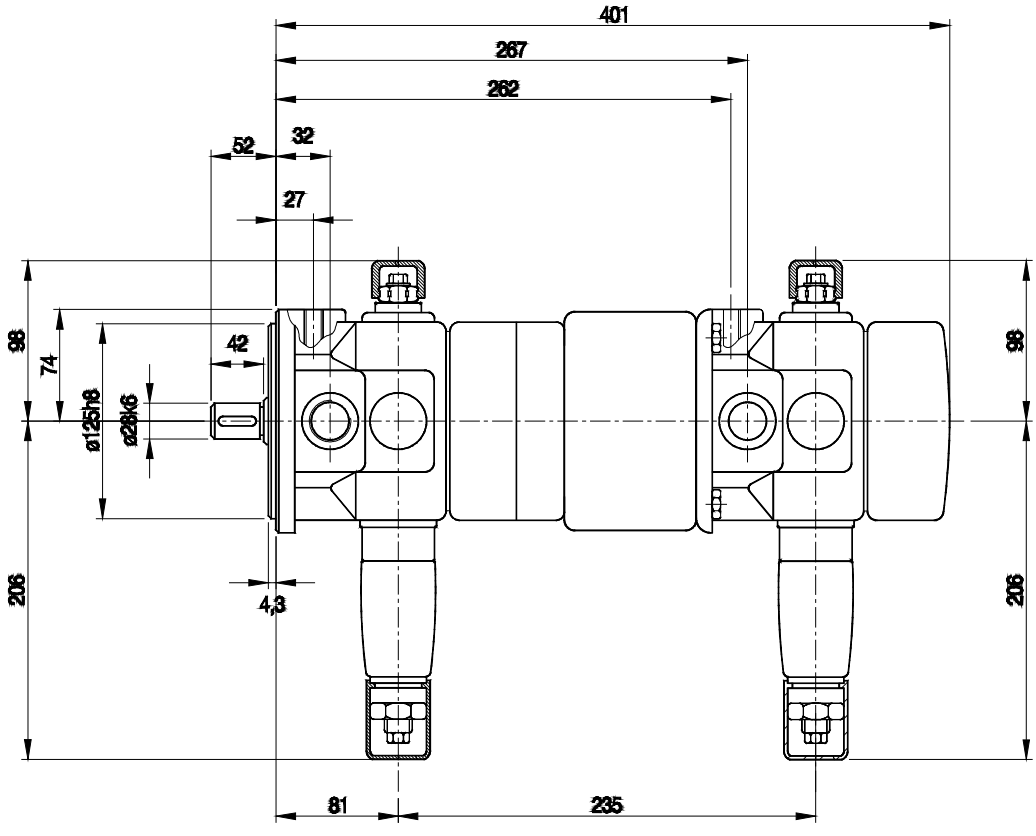
Overall dimensions for pump combination V3/40 + V3/12



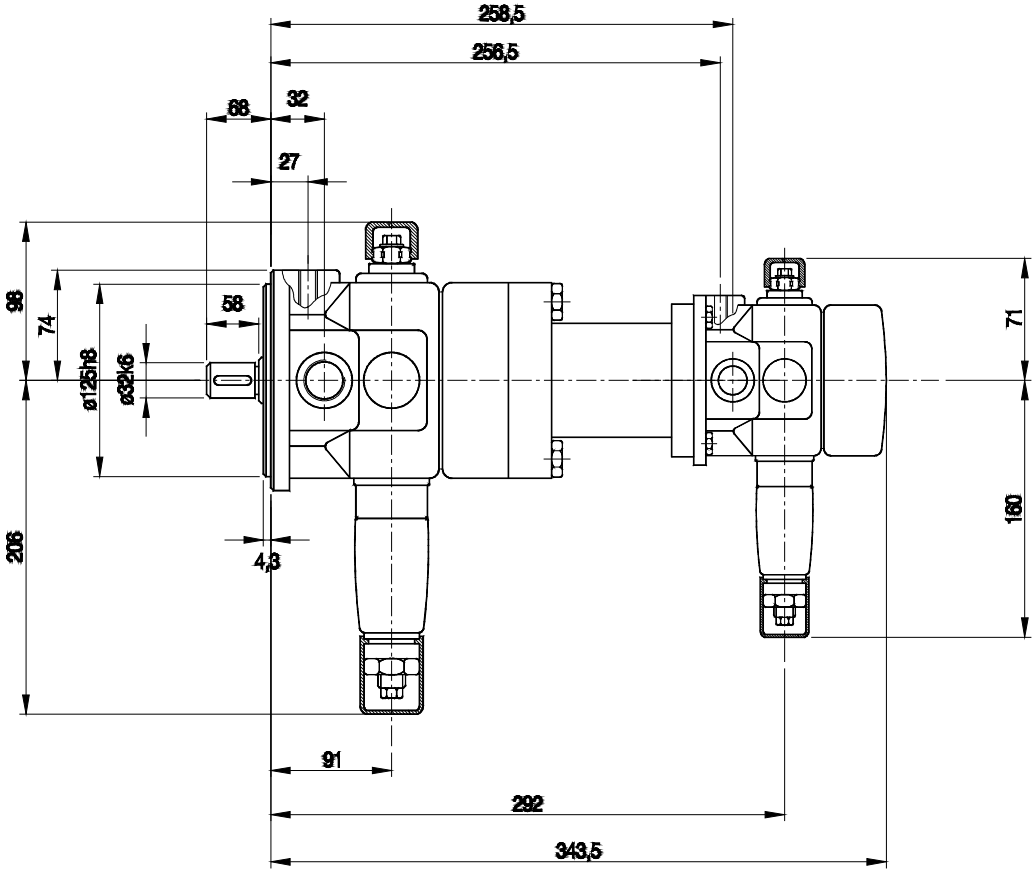
Overall dimensions for pump combination V3/40 + V3/25



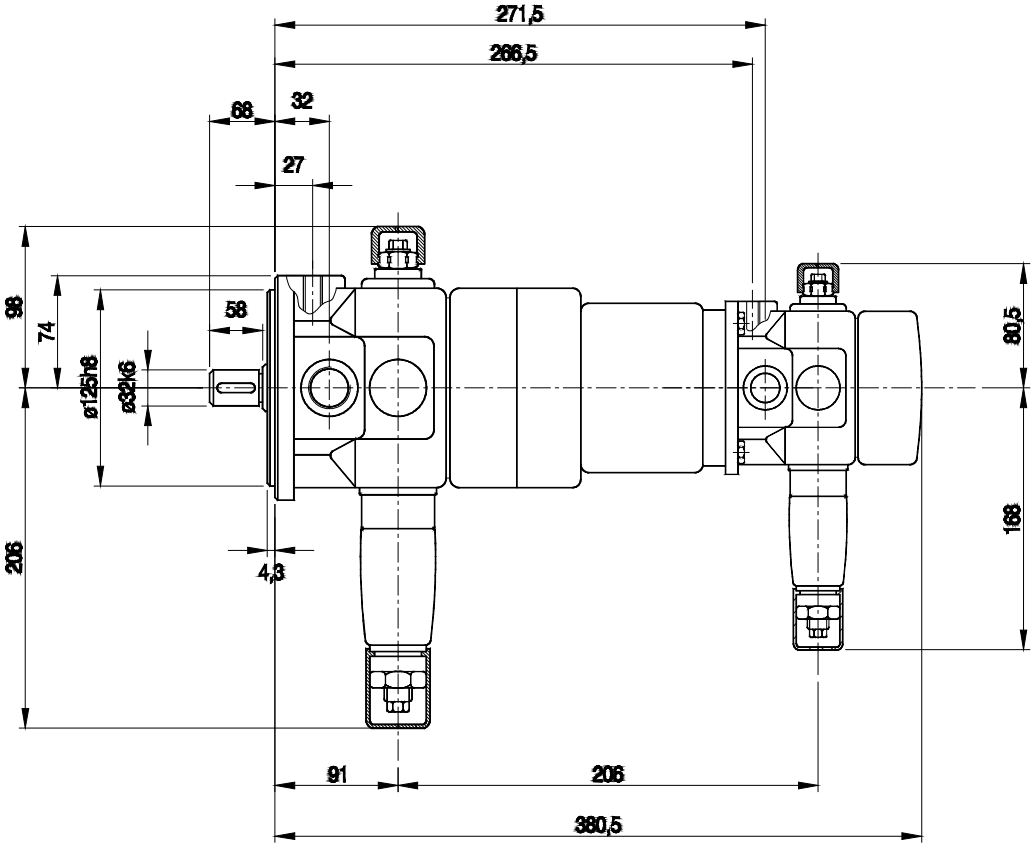
Overall dimensions for pump combination V3/40 + V3/40



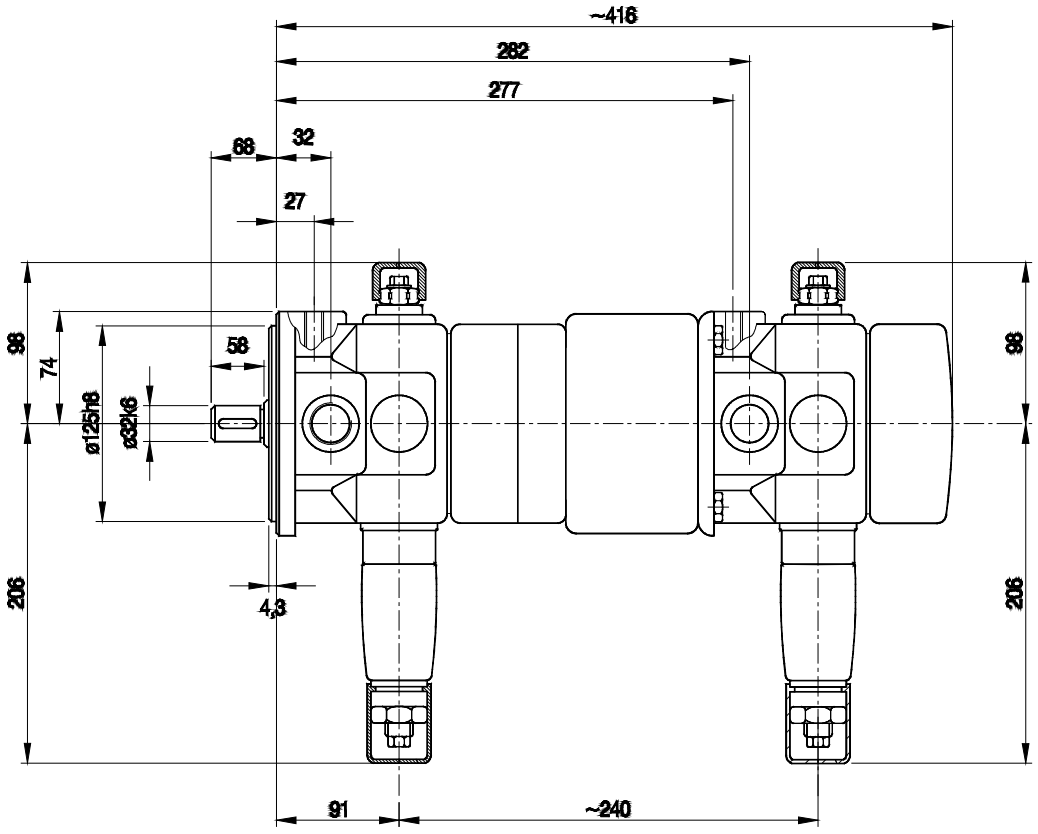
Overall dimensions for pump combination V3/63 + V3/12



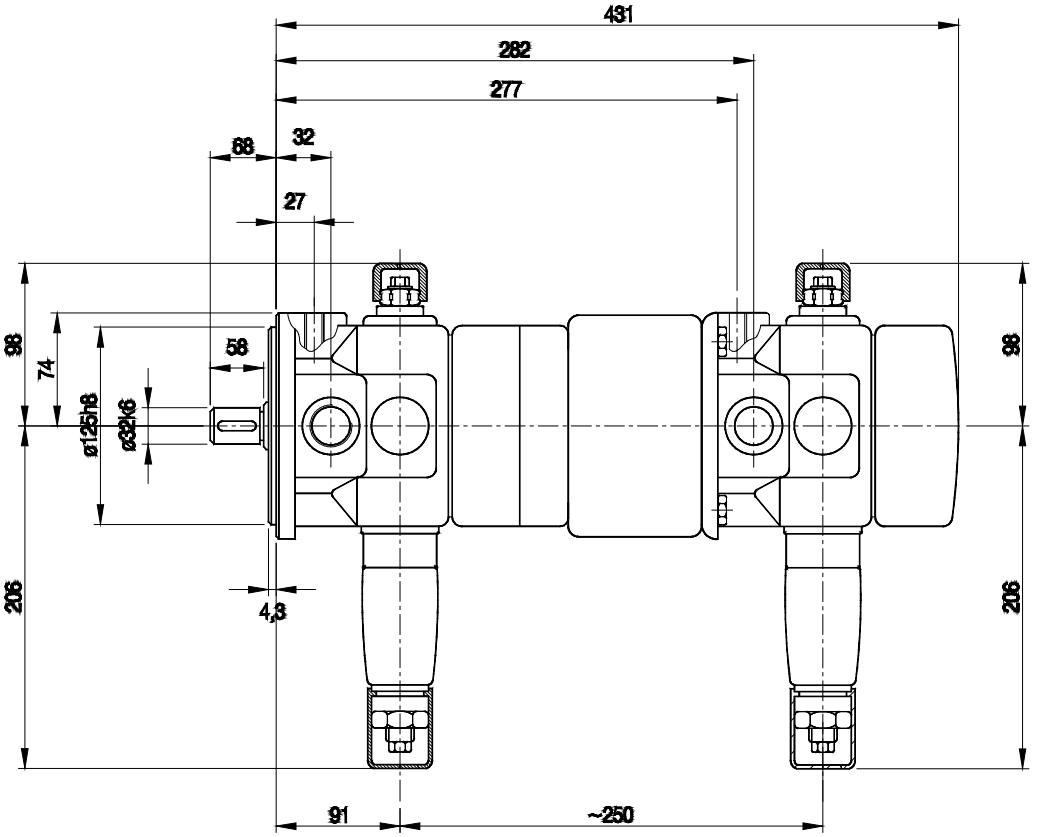
Overall dimensions for pump combination V3/63 + V3/25



Overall dimensions for pump combination V3/63 + V3/40



Overall dimensions for pump combination V3/63 + V3/63



HOW TO ORDER

Orders for pumps coded as below should be placed at the manufacturer.

Front pump	1 PV		V3	/	R	E						1
+ Rear pump	1 PV	2	V3	/	R	G	1					1

Mounting :
Flange = 2
Subplate = 6

Series number :
for V3/12 i 25 (30 - 39)
for V3/40 i 63 (20 - 29)
Connection and instalation dimensions remain unchanged

Pump combination :

WN12 + WN12	WN40 + WN40
WN25 + WN12	WN63 + WN12
WN25 + WN25	WN63 + WN25
WN40 + WN12	WN63 + WN40
WN40 + WN25	WN63 + WN63

Connection :
Threads = 1
Subplate = 8

Sealing :
For mineral oils = M
For phosphate ester = V

Pressure setting :
Pressure controller - hexagonal head screw = C
Pressure controller - squa re head screw = H
Lockable pressure controller = S

Zero stroke pressure range :

Zero stroke pressure range	10,0 MPa	= 100
Zero stroke pressure range	6,3 MPa	= 63
Zero stroke pressure range	4,0 MPa	= 40
Zero stroke pressure range	2,5 MPa	= 25

Flow setting :
Adjustment screw - hexagonal head screw = A
Adjustment screw - square head screw = H
Lockable adjustment screw = S

Air bleed valve

The coding of pump combination comprises two individual designations joined by a sign "+". Letter "E" is added to the designation of a front pump and letter "G" to the designation of a rear pump.

CODING EXAMBLE
1 PV2V3-30/25RE1MC100A1 + 1 PV2V3-30/12RG1MC63A1

For further details on single pumps see corresponding data cards:
PV3/12- WK 414/ 501
PV3/25 - WK 409/073
PV3/40 - WK 144/618
PV3/63 - WK144/619

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