Палубное оборудование KAWASAKI
Технические характеристики

Kawasaki Hydraulic Deck Machinery

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Windlass

Standard Specifications

anchor chain dia. (mm)	rated load × rated speed (kN × m/min)	rated load of mooring winch (kN)
40, 42	68, 75 × 9	50
44 ～ 48	92～109 × 9	80
50 ～ 60	119～171 × 9	80／100／125／160
62 ～ 73	183～253 × 9	80／100／125／160
76 ～ 81	274～312 × 9	125／160
84 ～ 95	335～429 × 9	125／160／200
97 ～	447～ × 9	200 ～

Note 1. Manufactured in accordance with JIS F6714.
2. Chain grade
ϕ40, ϕ42 : grade 2
ϕ44～ : grade 3

Mooring Winch

Standard Specifications

nominal size	rated load × rated speed (kN × m/min)	light line speed (m/min)	reference capacity (rope dia. × rope length) (mm × m)
50	50 × 15	45	ϕ55 × 200
80	80 × 15	45	ϕ65 × 200
100	100 × 15	45	ϕ70 × 200
120	125 × 15	45	ϕ75 × 200
160	160 × 15	45	ϕ75 × 250
200	200 × 15	45	ϕ75 × 250
250	250 × 15	45	ϕ80 × 250
315	315 × 15	45	ϕ85 × 250

Note 1. Manufactured in accordance with JIS F6709.
2. The figures refer to the first layer on the drum.
3. Automatic tension controlling mooring winches (auto-tension mooring winches) are also available upon request.

Cargo Winch

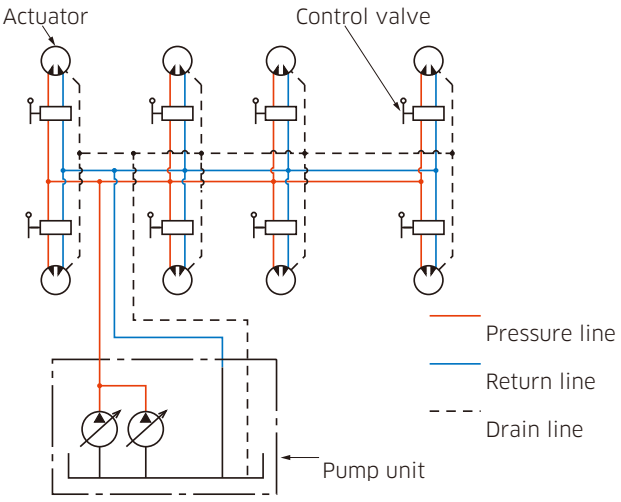
Standard Specifications

rated load × rated speed (kN × m/min)	lightline speed (m/min)	rated point	reference capacity (rope dia. × rope length)(mm × m)
49 × 30	80	2層目	ϕ25 × 150, ϕ24 × 200, ϕ22 × 215
49 × 37	83	2層目	
49 × 44	83	2層目	
73.5 × 30	80	2層目	ϕ28 × 220, ϕ26 × 240, ϕ25 × 245
73.5 × 40	97	3層目	

Kawasaki Hydraulic Deck Machinery 3 Popular Systems

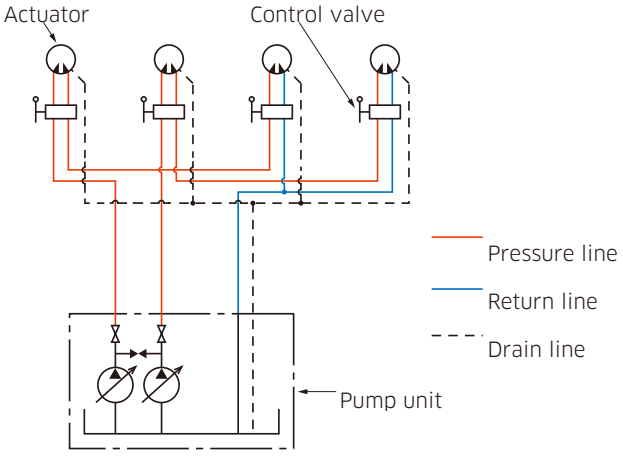
Advanced Series

● Single Main System (Parallel circuit)



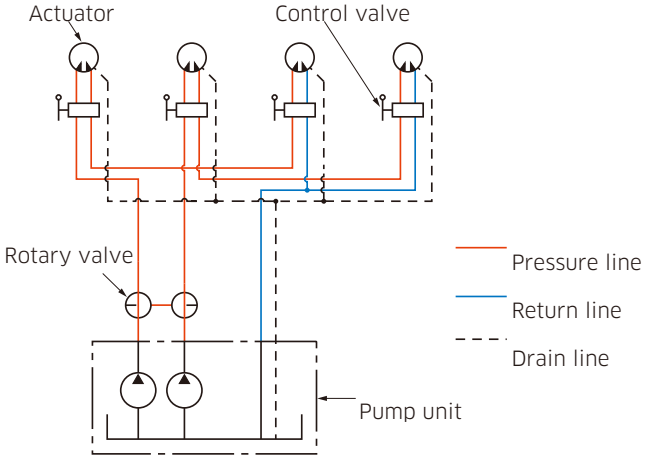
Drain-line-less system is available.

● Basic System (Series circuit)

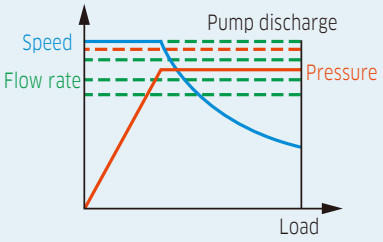
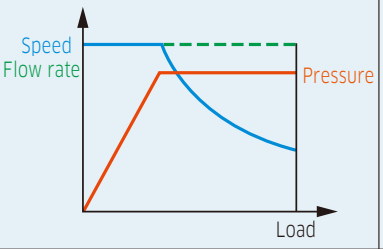
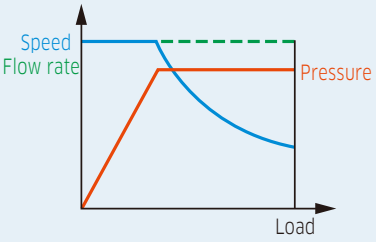


Silent System

Series circuit)

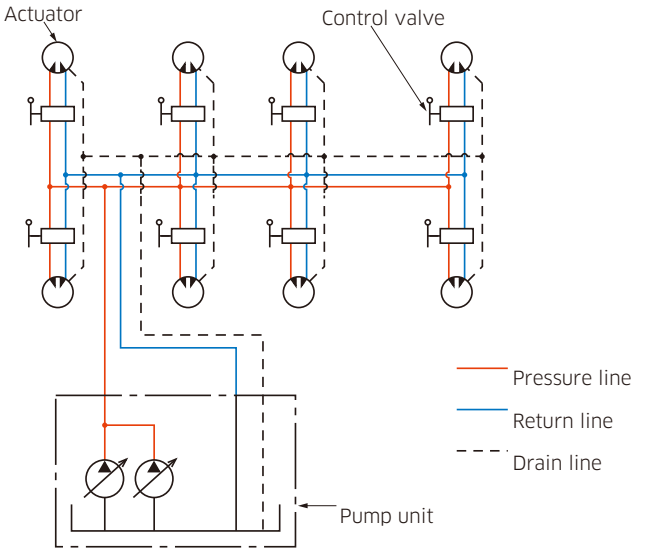


Features

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="2">Advanced Series</th><th rowspan="2">Silent System
(Series circuit)</th></tr>
<tr><th>Single Main System
(Parallel circuit)</th><th>Basic System
(Series circuit)</th></tr>
<tr><td rowspan="3">Main hydraulic equipment</td><td>Pump</td><td>Kawasaki K3VL series pump
(variable displacement axial piston pump) +pressure constant control regulator</td><td>Kawasaki K3VL series pump
(variable displacement axial piston pump) +horsepower constant control regulator</td><td>Kawasaki Screw Pump (fixed displacement, 3-axial screw type)</td></tr>
<tr><td>Motor</td><td colspan="3">HMKC/HMJC motor
(variable displacement, radial piston type)
HMKB motor
(fixed displacement, radial piston type)</td></tr>
<tr><td>Valve</td><td>KCB counterbalance valve
KWV control valve
(meter-in pressure compensation type)</td><td colspan="2">KCB counterbalance valve
KWV control valve
(bleed-off type)</td></tr>
<tr><td colspan="2">System outline</td><td>The power station with several K3VL series pumps in one place enables to simultaneously drive a plural number of actuators. Relying on our unique system, this power station enables to supply only the amount of pressured oil necessary for simultaneous operation. Winches are connected in parallel to the main line.
 
</td><td>The combination of variable displacement K3VL series pump and variable displacement motors which allows stepless control of displacement helps maintain constant horsepower characteristics (speed x load = constant); winches are connected in series.
 
</td><td>The combination of a fixed displacement pump and variable displacement motors which allows stepless control of displacement helps maintain constant horsepower characteristics (speed x load = constant); winches are connected in series.
 
</td></tr>
<tr><td colspan="2">Quiet operation</td><td colspan="2">K3VL series pump has good noise reduction features including our exclusively developed silencer.</td><td>Employing the screw pump, the noise level is far below that of the noise reduction type using a piston pump.</td></tr>
<tr><td colspan="2">Compact equipment components</td><td colspan="2">All equipment components are small and light on account of the high-pressure system.
(max. rated pressure: 27.5 MPa)</td><td>All equipment components are small and light on account of the high-pressure system.
(max. rated pressure: 24.5 MPa)</td></tr>
<tr><td colspan="2">Control</td><td colspan="3">Two types of control valves are available. One is a directly-coupled type to the motor and the other is a stand type. The control stand can be installed anywhere, making remote control of the winches easier.</td></tr>
<tr><td colspan="2">Smooth speed control</td><td colspan="3">Simply by operating the control stand lever, stepless control is possible over a wide range of speed, from inching to full speed, with a minimum effort.</td></tr>
<tr><td colspan="2">Safety</td><td colspan="3">Even in case an accident, such as power failure or damage to piping, while being lifted, the load can safely be retained thanks to the counter balance valve directly coupled to the motor (pipeless type).</td></tr>
<tr><td colspan="2">Wide range of hydraulic pressure source</td><td>Hydraulic pressure can be supplied to the devices for the hatch covers or to be ramp-way winch by branching from the main line.</td><td colspan="2">Hydraulic pressure can be supplied to the devices for the hatch covers or to be ramp-way winch by switching the circuit from the main line.</td></tr>
<tr><td colspan="2">Applicable ships</td><td>Mainly medium/large vessels
Vessels with auto-tension mooring winches
Vessels with one power pack station</td><td>Mainly small/medium vessels</td><td>Mainly small/medium vessels
Vessels equipped with cargo winches
Vessels for which low noise is especially required</td></tr>
</table>

Single Main System (Parallel circuit)

The pump unit in one place can drive a plural number of actuators of different types and capacities, all simultaneously while avoiding mutual interference. Being easy to operate and maintain, and small and quiet, this system has steadily built up a loyal following among our many clients, receiving high reputations from shipyards and ship owners domestic and overseas.



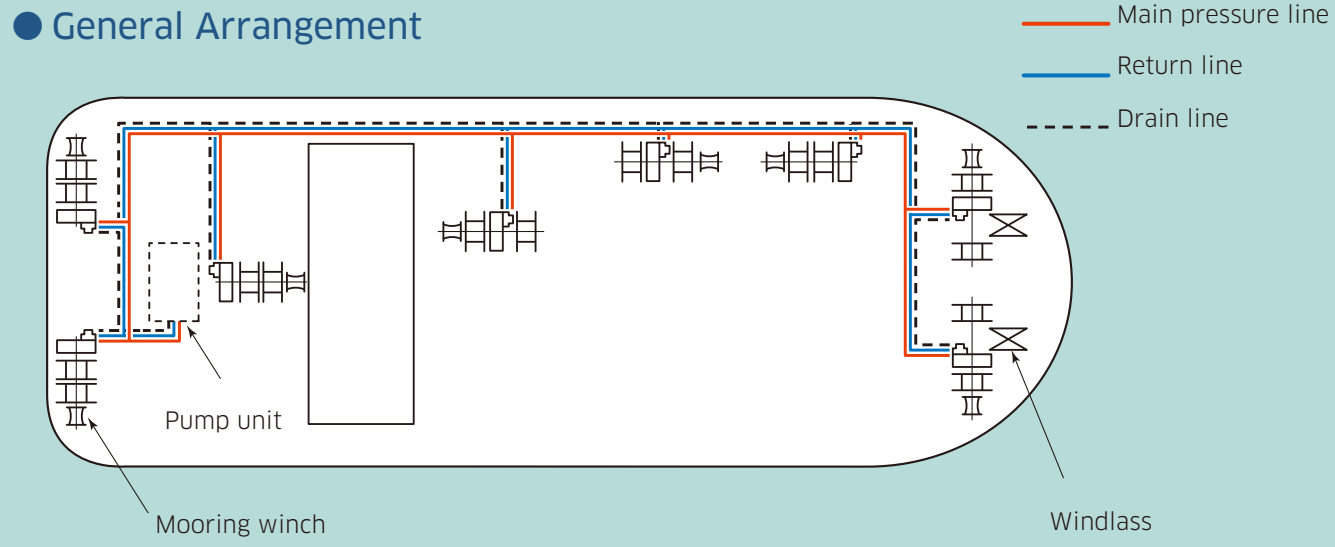
Drain-line-less system is available.

Examples of Actual Applications (185,000 DWT motor bulk carrier)

● Examples of Actual Applications (185,000 DWT motor bulk carrier)

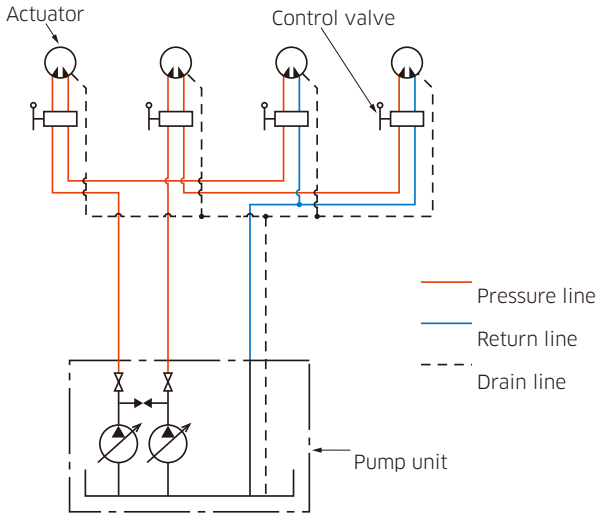
Here is an example of the Single Main System in use on a bulk carrier. The pump is installed at the stern, driving the windlasses at the bow and all the mooring winches. The piping is simple, making installation and maintenance incredibly easy.
The Single Main System has been applied to a broad range of applications on tankers, container ships, RO/RO vessels and other such commercial ships.

● General Arrangement



Basic System (Series circuit)

As the forerunner of today's high-pressure deck machinery, the Basic System has been delivered to numerous ships since its development in 1963. The pumps are installed at the bow and stern, each pump unit drives actuators piped in series. The horsepower constant control of pumps and motors achieves high-efficient hydraulic deck machinery.

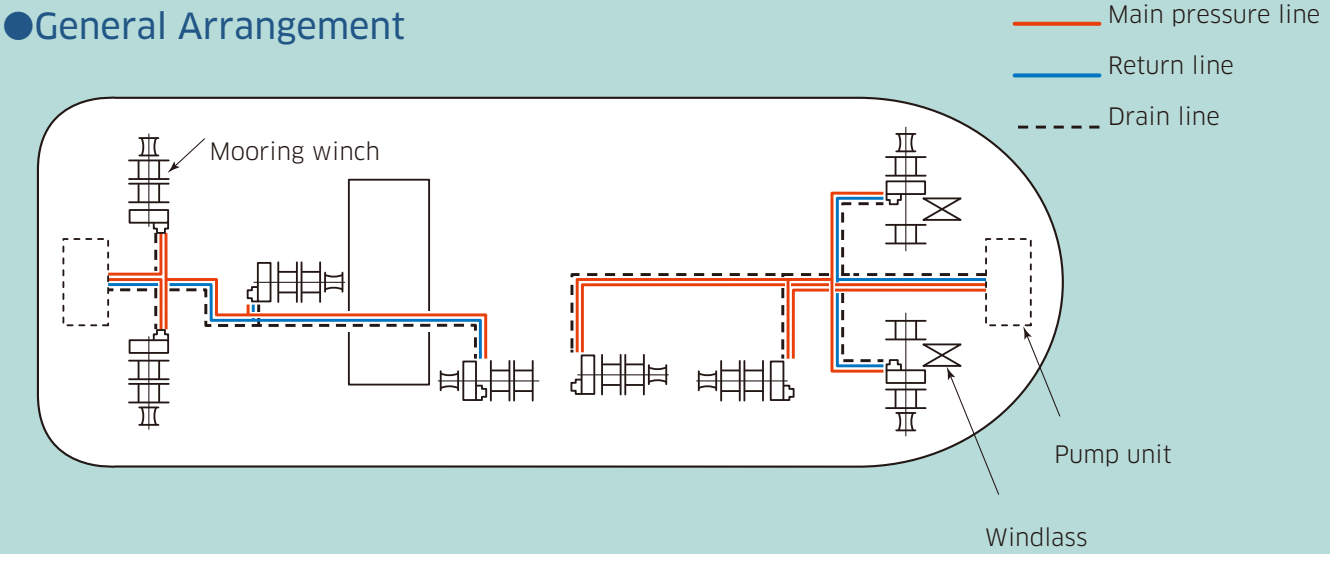


Examples of Actual Applications (80,000 m³ motor LPG carrier)

●Examples of Actual Applications (80,000 m³ motor LPG carrier)

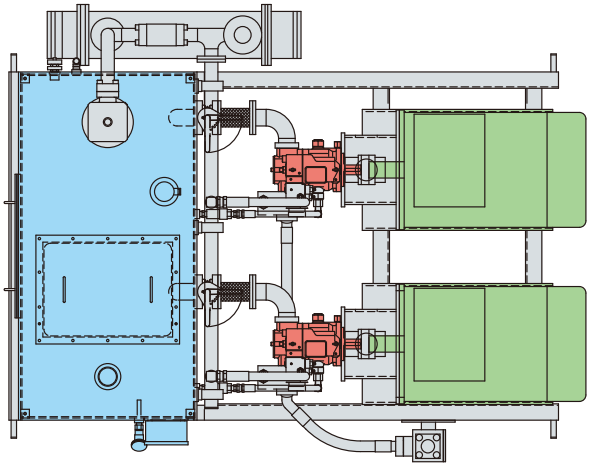
Here is an example of the Basic System in use on LPG carrier. The pumps are installed at the bow and stern. Each pump drives the windlasses and mooring winches at the same side.
The Basic System has been applied to ships equipping the power station in two places.

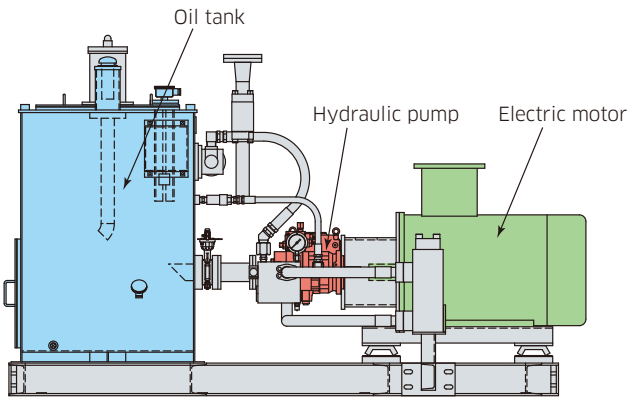
●General Arrangement

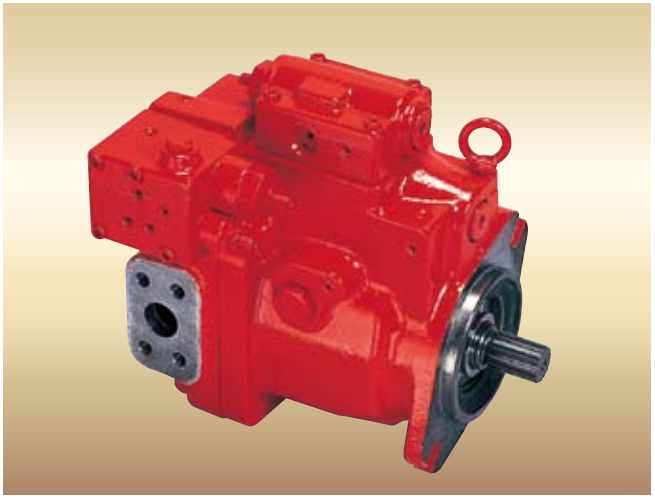


Advanced Series Pump Unit

The Advanced Series Pump Unit that realized high-pressure and low-noise hydraulic deck machinery by our expertise in hydraulic system and manufacturing in many years is changed from K3VG series pump to K3VL series pump. It keep trustiness and became light in weight and easy to maintenance.





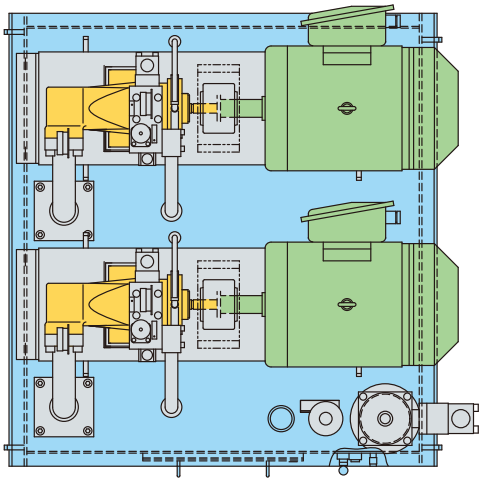


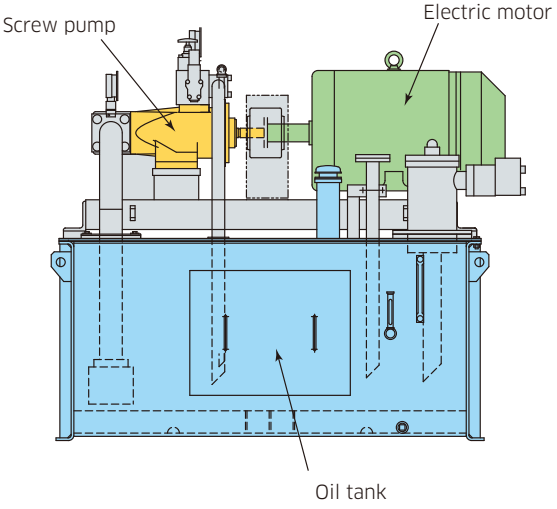
Standard Specifications

type of pump unit × set (kN × m/min)	(1,750rpm) max. delivery (at 1,750rpm)(L/min)	max. working pressure (MPa)	reference electric motor (one pump) (kW)
K3VL80×2	252	27.5	~ 75
K3VL140×2/3	456/684	27.5	~125
K3VG180×2/3	576/864	27.5	~180

Silent System Pump Unit (for series circuit only)

The B4 Screw Pump is used as the hydraulic source based on its ample record of proven performance as a low-noise hydraulic pump. The B4 Screw Pump creates far less pulsation in discharge pressure and less casing vibration, keeping the hull and piping vibration/noise low. In addition, the B4 Screw Pump achieved higher discharge pressure (24.5 MPa). So the Silent System can be expand applications to medium commercial ships. The hydraulic circuit of the Silent System is the same series circuit as used in the Basic System.





Standard Specifications

type of pump unit × set (kN × m/min)	(1,750rpm、2MPa) max. delivery (at 1,750rpm, 2MPa) (L/min)	max. working pressure (MPa)	reference electric motor (one pump) (cont./40%ED kW) at 20MPa
B38 × 1／2	55／110	24.5	22／27
B45 × 1／2	94／188	24.5	30／37
B52 × 1／2	145／290	24.5	45／60
B60 × 1／2	226／452	24.5	60／90
B70 × 1／2	361／722	24.5	100／140

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