



Hebe- und Transportsysteme
Lifting And Moving Systems

GKS[®]
PERFEKT

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OPERATING INSTRUCTIONS 2010 FOR HYDRAULIC HAND PUMPS GKS-PERFEKT

TYPE PV-K, PV-M, PV

TWO-STAGE HYDRAULIC HAND PUMP

Definition:

A hydraulic hand pump delivers hydraulic fluid under pressure by directly applied manual effort.

TECHNICAL DATA

For use with single-acting cylinders (pump includes 2-way valve).

	Art.no.	Stages of operation	Volume & pressure				Handle or foot lever effort		Reservoir				Product weight	
			Volume per stroke		Max. pressure		lbs.	kg	Oil capacity		Usable oil capacity		lbs.	kg
			In. ³	cm ³	psi	bar			In. ³	cm ³	In. ³	cm ³		
PV-K	10197	1	0,305	5	325	22	8,5	3,8	24,4	400	20	328	6,6	3
		2	0,091	1,2	10000	700	98,5	44,9						
PV-M	11827	1	0,662	10,9	325	22	145	65,8	55	902	45	738	17,2	7,8
		2	0,160	2,6	10000	700								
PV	10198	1	2,600	42,6	325	22	140	63,5	152	2491	137	2245	26,0	11,8
		2	0,160	2,6	10000	700								

TYPE PV-K



TYPE PV



TEST CERTIFICATE



MANUFACTURE AND SALES

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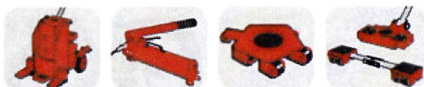
TYPE PV-M



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SAFETY INSTRUCTIONS

It is the operator's responsibility to read and understand the following safety statements.

Only qualified operators should install, operate, adjust, maintain, clean, repair, or transport this machinery.

These components are designed for general use in normal environments. These components are not specifically designed for lifting and moving people, agri-food machinery, certain types of mobile machinery or special work environment such as: explosive, flammable or corrosive. Only the user can decide the suitability of this machinery in these conditions or extreme environments.

PICTOGRAM DEFINITION



Do not remove this component. For service only. Pressure must be released.

SAFETY EXPLANATION



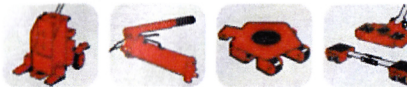
WARNING:

Danger is used only when your action or lack of action will cause serious human injury or death.

ALL STICKERS REPLACING, AS SOON AS IT ILLEGIBLE

SAFETY INSTRUCTIONS

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SAFETY INSTRUCTIONS SAFETY PRECAUTIONS



WARNING: To help prevent personal injury:

- Before operating the pump, all hose connections must be tightened with the proper tools. Do not overtighten. Connections need only be tightened securely and leak-free. Overtightening may cause premature thread failure or high pressure fittings to split at pressures lower than their rated capacities.
- Should a hydraulic hose ever rupture, burst, or need to be disconnected, stop pumping and open the valve to release all pressure. Never attempt to grasp a leaking hose under pressure with your hands. The force of escaping hydraulic fluid could cause serious injury.
- Do not subject the hose to any potential hazard such as fire, extreme heat or cold, sharp surfaces or a heavy impact. Do not allow the hose to kink, twist or bend so tightly that the fluid flow within the hose is blocked or reduced. Periodically inspect the hose for wear because any of these conditions can damage the hose and result in personal injury.
- Do not use the hose to move attached equipment. Stress may damage the hose and cause personal injury.
- Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses also must not come in contact with corrosive materials such as creosote-impregnated objects and some paints. Consult the manufacture before painting a hose. Never paint the couplers. Hose deterioration due to corrosive materials may result in personal injury.
- All components in the hydraulic system must match the maximum pressure rating of the pump.

Pump

- Do not exceed the pressure rating noted on the pump nameplate or tamper with internal high pressure relief valve. Creating pressure beyond rated capacities may result in personal injury.
- Before adding hydraulic fluid, retract the system to prevent overfilling the pump reservoir. An overfill may cause personal injury due to excess reservoir pressure created when cylinders are retracted.
- The load must be under operator control at all times.
- Do not connect pump to hydraulic system powered by another pump.

Cylinder

- Do not exceed rated capacities of the cylinders. Excess pressure may result in personal injury.
- Do not set poorly-balanced or off-centre loads on a cylinder. The load may tip and cause personal injury.
- Stay clear of lifted loads and keep others away.
- Extensions are not recommended for lifting applications.

SAFETY INSTRUCTIONS

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SET-UP HYDRAULIC CONNECTIONS

IMPORTANT: Seal all hydraulic connections with a high grade, no hardening thread sealant. Teflon tape may also be used to seal hydraulic connections if only one layer of tape is used. Apply the tape carefully, two threads back, to prevent it from being pinched by the coupler and broken off inside the pipe end. Any loose pieces of tape could travel through the system and obstruct the flow of fluid or cause jamming of precision-fit parts.

1. Clean all areas around the fluid ports of the pump and cylinder.
Clean all hose ends, couplers and union ends. Remove thread protectors from the hydraulic fluid outlets, and connect the hose assembly. Couple hose to cylinder.

2. The use of a hydraulic pressure or tonnage gauge (not included) is strongly recommended.



WARNING: To help prevent personal injury:

- The gauge must have the same pressure rating as the pump and cylinder.

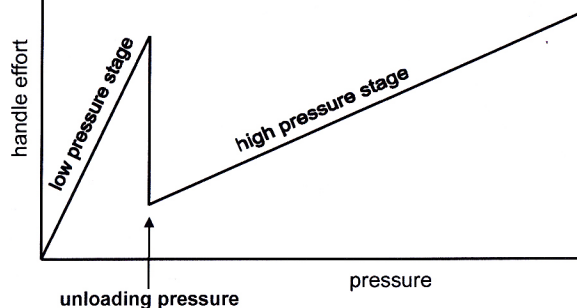
Personal injury can result if the wrong gauge is used.

- Release hydraulic pressure BEFORE removing or tightening hose couplings.

OPERATION

The hand pumps can be operated in a horizontal position or in a vertical position with head pointing downward

Figure 1



IMPORTANT:

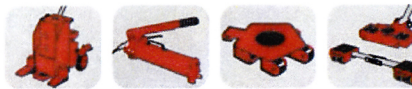
Figure 1 illustrates the *normal* drop of handle effort experienced when the pump PV and PV-K (except PV-M) shift from low pressure stage to high pressure stage.

The pumps are equipped with a two-way valve and for the use with single-acting cylinders.

1. To extend the cylinder, turn the valve knob counter clockwise to a closed (seated) position.
Note: Hand tight only! Work the pump handle up and down to build pressure.
2. To release pressure, open the valve slowly by turning the knob clockwise to control the load.



WARNING: The operator should always release the pressure slowly.



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PREVENTIVE MAINTENANCE

IMPORTANT:

Any repair or servicing that requires dismantling the pump must be performed in a dirt-free environment by a qualified technician.

LUBRICATION

Apply lubricant regularly to all pivot and rubbing points.

Use a good grade of No. 10 motor oil or grease. Do not use dry lubricants.

BLEEDING AIR FROM THE SYSTEM

Air can accumulate in the hydraulic system during the initial set-up after prolonged use, causing the cylinder to respond slowly or in an unstable manner. To remove the air:

1. Position the cylinder at a lower level than the pump, and turn the cylinder rod end down.
2. Extend and retract the cylinder several times without putting a load on the system. Air will be released into the pump reservoir. Follow the fluid level instructions to release the air from the reservoir and top off the fluid supply.

BLEEDING AIR FROM THE PUMP

When the pump is first put into use, or after refilling the pump's reservoir it may be necessary to bleed any air from the pump. If this is not done the pump will not function properly (will not build pressure or has very spongy operation).

To bleed air from the pump, turn the pressure control knob counter clockwise (CCW) and operate the pump handle up and down approximately twenty times. Turn the pressure control knob clockwise (CW) to its full stop position. The pump should now be bled of air and ready to use

HYDRAULIC FLUID LEVEL



WARNING:

Cylinder(s) must be fully retracted before checking the fluid level. Release all system pressure before breaking any hydraulic connection in the system.

Check the hydraulic fluid level in the reservoir periodically.

Use a funnel with a filter to add hydraulic fluid if needed.

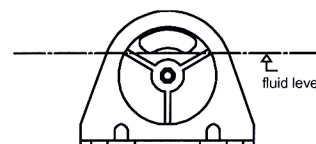
Remove the filler cap.

The fluid level should come to the bottom edge of the filler hole when the pump is level and resting horizontally on its base and the cylinders are retracted.

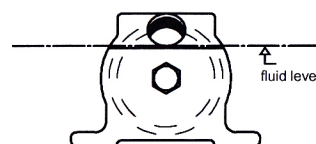
(see figure 2).

Figure 2

END VIEW OF THE
PUMPS PV AND PV-M



END VIEW OF THE
PUMP PV-K





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(CONTINUATION) PREVENTIVE MAINTENANCE
LUBRICATION

Drain, clean and replenish the reservoir with high-grade, approved Power Team hydraulic fluid yearly or more often if necessary. The frequency of fluid change will depend upon the general working conditions, severity of use and overall cleanliness and care given the pump.

IMPORTANT: Clean the exterior of the pump first. After draining and flushing the reservoir, drain and clean the other hydraulic system components (hoses, cylinders, etc.) before connecting them to the pump again. This will help prevent contaminated fluid from entering the pump.

1. Remove the filler cap. Drain the hydraulic fluid through filler hole.
2. Remove the nut from the tie rod. Separate the reservoir from the pump body. Clean the reservoir and filter.
IMPORTANT: Removing the filter from the pump assembly could result in its breakage. Attempt to clean it as well as possible with it installed.
3. Reassemble and fill the reservoir with hydraulic fluid. Replace the filler cap.

TROUBLESHOOTING GUIDE



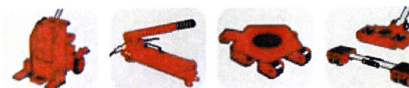
WARNING: To help prevent personal injury, always release pump pressure and disconnect hoses from pump before making repairs.

Refer to the appropriate pump parts list during trouble-shooting. Repairs must be performed in a dirt-free environment by qualified personnel familiar with this equipment.

PROBLEM	CAUSE	SOLUTION
Pump losing pressure	1. System components leaking	1. Repair or replace as necessary
	2. Directional control valve leaks or not adjusted properly	2.* Reseat, repair, or replace directional control assembly and correctly adjust
	3. Fluid leaking past outlet check seat(s)	3.* Check for dirt. Reseat pump body and/or replace poppet(s) or ball(s)
Handle rises after each stroke	1. Fluid leaking past outlet check seat(s)	1.* Check for dirt. Reseat pump body and/or replace poppet(s) or ball(s)
Pump not delivering fluid	1. Low fluid level in reservoir	1. Check fluid level per instructions
	2. Intake filter is dirty	2. Remove reservoir and clean
	3. Seat worn and not seating properly	3.* Repair seats or replace pump body

PREVENTIVE MAINTENANCE
TROUBLESHOOTING GUIDE

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(CONTINUATION) TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Pump does not reach full pressure	1. Low fluid level in reservoir	1. Check fluid level per instructions
	2. System components leaking	2. Repair or replace as necessary
	3. Directional control valve leaks or not adjusted properly	3.* Reseat, repair, or replace directional control assembly and correctly adjust
	4. Improperly adjusted relief valve	4.* Readjust
	5. Fluid leaking past inlet or outlet checks or high pressure piston seal damaged	5.* Reseat or repair inlet or outlet checks or replace high pressure piston seal
Pump handle can be pushed down (slowly) without raising the load	1. Inlet checks are not seating	1.* Check for dirt and/or reseat valve seats
	2. Damaged piston assembly or piston seals leaking	2.* Replace piston assembly and/or piston seals
Pump handle operates with a spongy action	1. Air trapped in system	1. Position cylinder lower than pump. Extend and return cylinder several times. Follow bleeding instructions.
	2. Too much fluid in reservoir	2. Check fluid level per instructions
Pump handle effort drops significantly after some pressure has been obtained	1. This is normal operation on most two-stage hand pumps	

* The company Kramp recommends these hand pump repairs be performed by the manufacturer.

EC CONFORMITY DECLARATION

According to EC directive on machinery 2006/42/EG 17.05.06 Appendix IIA

This is to confirm, that the GKS-Perfekt Hydraulic Hand Pumps

Type	PV-K	PV-M	PV
Article-no.	10197	11827	10198

complies with the following relevant specific standards:

■ DIN EN ISO 12100-1 and -2

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Fellbach, 29.07.10

Kramp

TROUBLESHOOTING GUIDE
EC DECLARATION OF CONFORMITY

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