

Damcos™ LPU-S-Ex-d-IIC

for single-acting spring operated actuator



LPU-S-Ex-d-IIC (and LPU-S-Ex-d-ia-IIC)

LPU-S-Ex-d-IIC is designed for controlling spring closing actuators. Oil pressure is used for opening the actuator by pressing the springs together. Closing actuator by means of mechanical springs.

The LPU is approved according to the ATEX directive 94/9/EC and is built to meet the requirements for mounting in hazardous areas Group II, Zone 0 (ia version, only actuator), Zone 1, Zone 2, Gas class 2C and temperature class T5 or T6. Shielded 230V supply cable must always be used.

For further technical information please see general product datasheets for the standard LPU.

Control type: MTM BUS / P-NET.

Note!

For fast closing of LPU-S-Ex, see separate product data sheet with product name Damcos QC-Block.

Zener-barrier

The LPU Ex-d-ia-IIC is equipped with an internal zener-barrier, built-in in the top cover, which then holds an Ex-d cable gland. This feature makes it possible to place the actuator and an external position indicator even in zone 0 (connected to the LPU through piping), and connect the position indicator directly to the LPU Zener barrier. The LPU may be located in zone 1.

Note!

When LPU is equipped with zener barrier, the 24VDC power supply to the LPU should be connected 0 to ground. Else even a brief connection of +24V to ground will destroy the zener barrier.

Temperature Watchdog

The LPU is equipped with a patented "temperature watchdog" which enables the LPU to operate in hot ambient temperatures and still be able to ensure that the LPU surface temperature never exceeds the allowed maximum, according the appropriate temperature class (T5 or T6).

Just before the amount of heat stored in LPU gets critical, the motor is switched off.

Control type: MTM-BUS / P-NET®, with the option of hardwire control. Please see LPU P-NET datasheet.

Operation LPU-S-Ex-d-IIC

To move the valve towards open, the motor (3) is activated. The oil is led from tank through the pump and through the non-return valve (17), directly to the actuator B port.

To prevent the oil from flowing back to tank, the solenoid valve (16) must be energized. When the valve is fully open, the pressure rises to 150 bar which causes the pump safety valve (7) to open and the oil flows back to tank. The motor is de-energized. The actuator is now hydraulically locked in position by the solenoid valve.

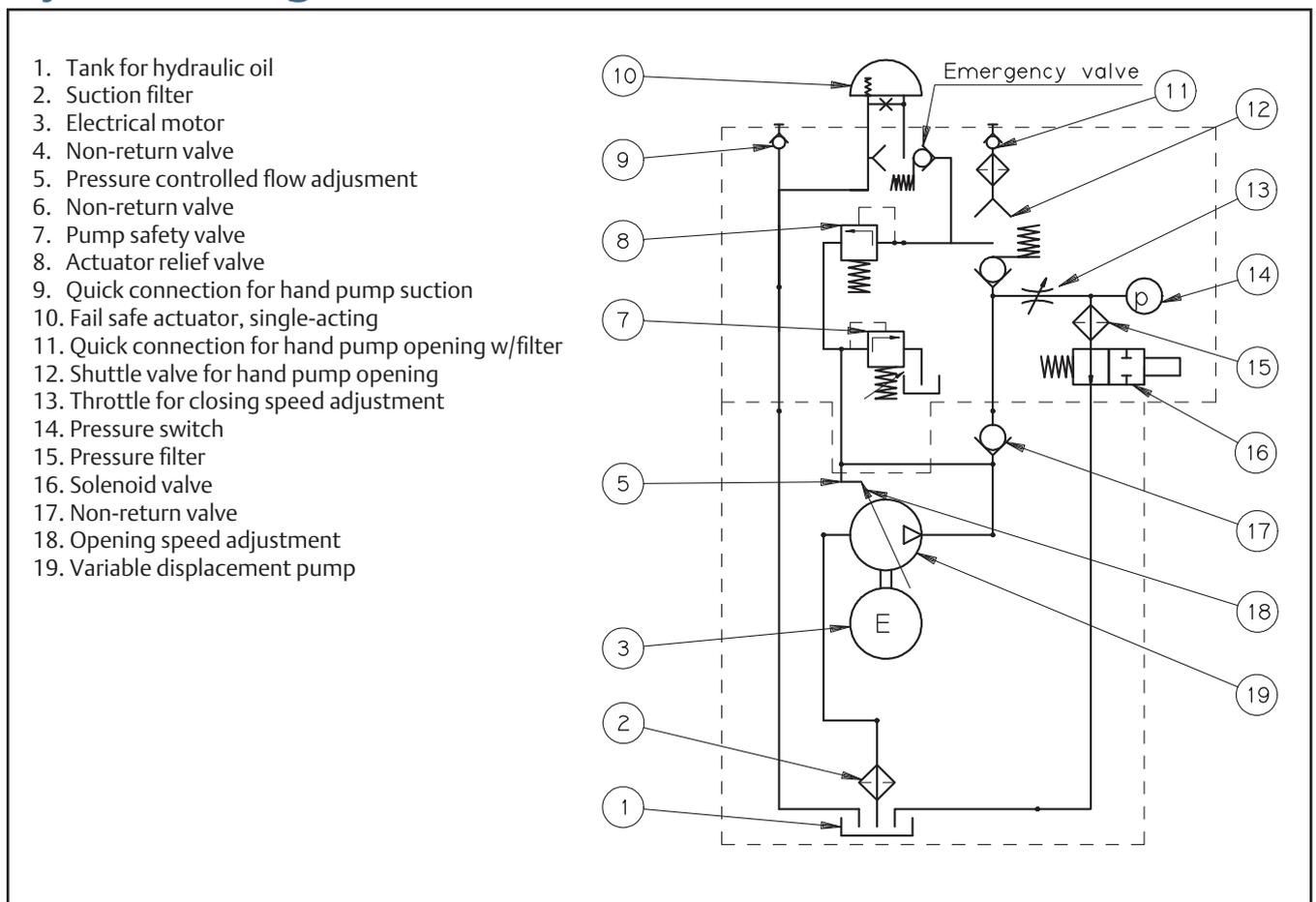
In case of a major increase of temperature, the pressure may rise. This will not cause any problems because of the safety valve (8) which will open at approximately 225 bar.

The valve can be stopped (and hydraulically locked) in any intermediate position simply by de-energizing the motor.

If the pressure drops while valve is fully open - due to a minor leakage in the solenoid valve or due to temperature variations -, the pressure switch (14) will detect this. The motor may then be activated for some seconds in order to keep up the pressure, and prevent the valve from leaving the open position. - This may take place automatically.

To move the valve towards closed, the solenoid valve is de-energized. The springs then move the actuator, pressing the oil back from the actuator B port, through the throttle valve (13) and the solenoid valve (16) to the LPU tank.

Hydraulic diagram for LPU-S-Ex-d-IIC



Emergency operation LPU-S-Ex-d-IIC

... with portable hand pump (BRCF)

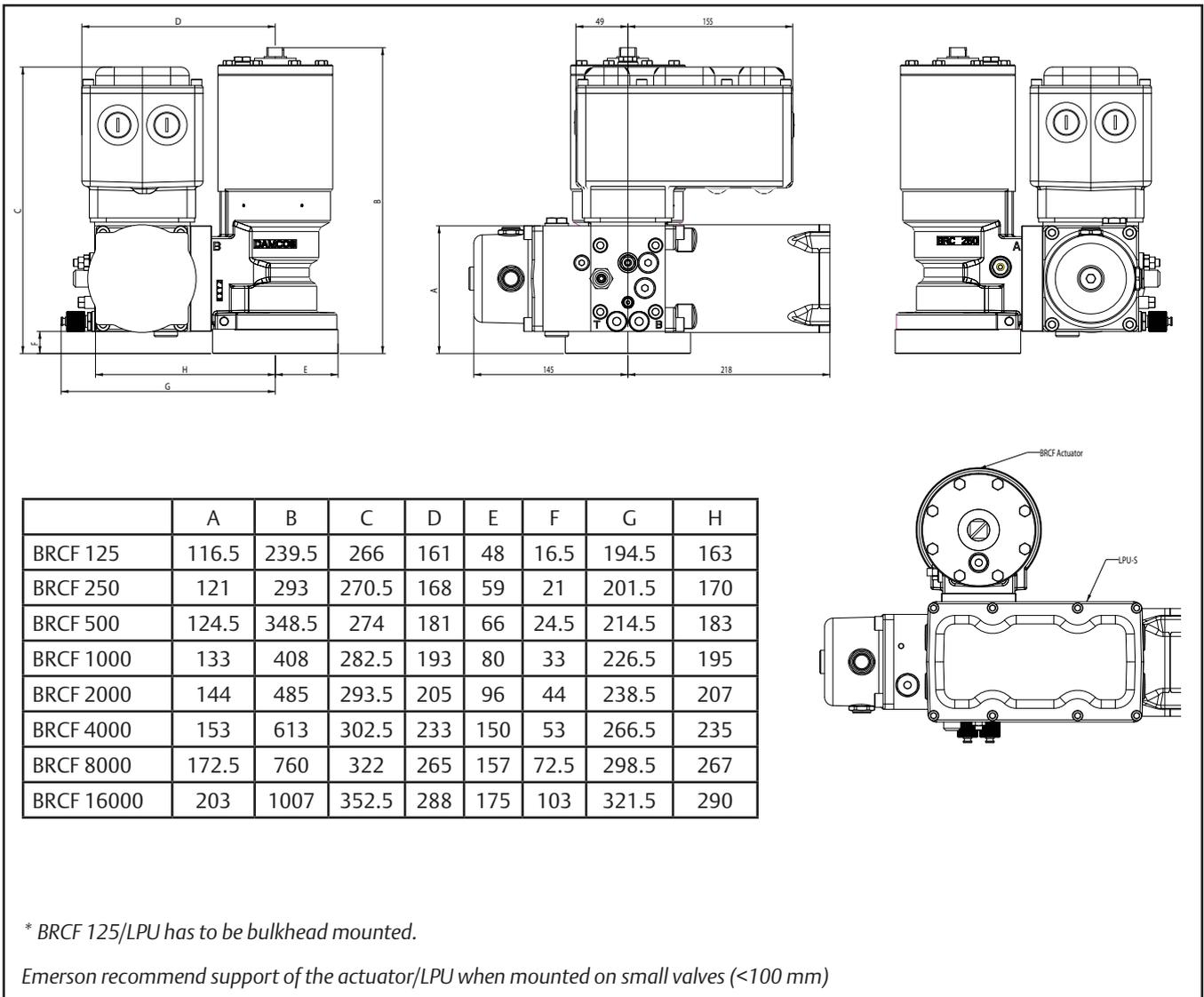
A portable hand pump is connected to the two quick connections (9) and (11). With suction to T and pressure to B which causes the shuttle valve (12) to change over and prevents the oil from flowing to tank. When reaching the required position, the hand pump can be disconnected. If the valve must be emergency operated towards closed, the cross-over valve on the actuator is opened until the required position is reached. When the valve is fully closed, the shuttle valve will reset.

..with permanently connected (bulkhead-mounted) hand pump

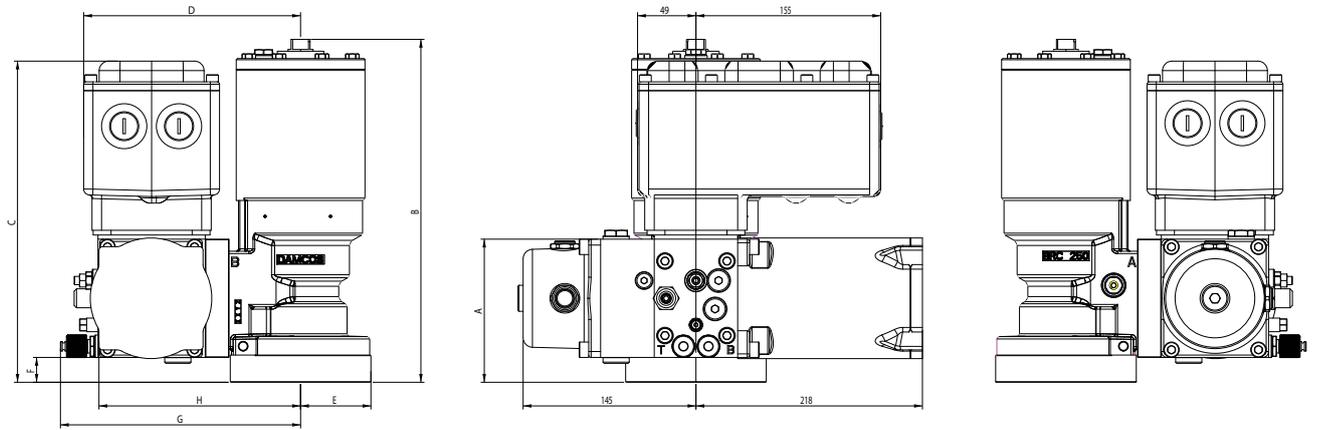
Opening: Hand pump is activated until the required valve position is reached.

Closing: The valve moves towards closed by opening the bypass valve in the hand pump block. When the remote control has to take over, the valve can be closed by energizing the solenoid valve and the motor for a few seconds. This will reset the shuttle valve. After emergency operation, remote control is automatically in charge.

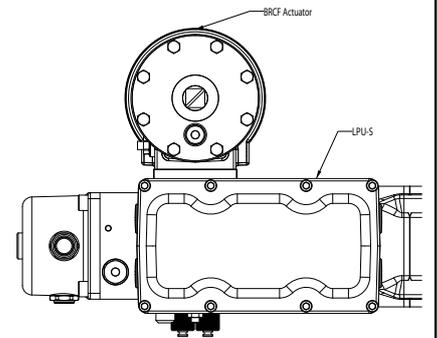
Dimensions LPU-S-Ex-d-IIC on BRCF actuator



Dimensions LPU-S-Ex-d-IIC on KF/KFR actuator



	A	B	D	E	G	H	Stroke max.
KF 65	16	213	172.5	76	189	157.5	16.25
KF 125	24	317	175	90	191.5	160	31.25
KF 250	52.5	580.3	210.5	140	218	186.5	62.5
KFR 125	24	317	175	90	191.5	160	31.25
KFR 250	52.5	580.3	201.5	140	218	186.5	62.5
KF 259/125	52.5	419.5	201.5	140	218	186.5	37.5
KFR 250/125	52.5	419.5	201.5	140	218	186.5	37.5



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