KV Elevator Control Valve Trouble Shooting (2020)

UP Travel

EN ISO 9001

Problem	Possible cause	Recommended
No up-start (elevator remains at floor)	Test for **KV1S** and **KV2S**: Turn adjustment 5 all the way in. If the elevator now starts upwards the problem is at solenoid **A**.	
	Coil **A** not energized or voltage too low.	Check electrics. See Ⓐ below.
	Solenoid **A** tube not screwed down tight.	Tighten solenoid **A** tube.
	Solenoid **A**: needle **AN** and seat **AS** contaminated or damaged.	Clean or change needle and seat.
	Orifice in bypass flow guide **U** blocked.	Clean or change bypass flow guide **U**.
	Adjustment **1** opened too far. Not enough pilot pressure (minimum 5 bar).	Adjust bypass pressure.
	Bypass flow guide **U** too large (slots too wide).	Insert smaller bypass flow guide (see 'flow guide charts' on KV-datasheet).
	Pressure of relief valve **S** is set too low.	Set relief valve higher (turn in).
	Down valve **Y** and/or down valve **X** (KV2 only) are open due to contamination in their orifices (if elevator sits on the buffers).	Clean or replace down valve **Y** and/or down valve **X** (KV2 only).
	Solenoid **D**: needle **N6** and seat **S6** contaminated or damaged.	Clean or change needle and seat.
	Pump running in the wrong direction.	Check motor direction and install the pump correctly.
	The pump connection flange is leaking excessively.	Seal the pump connection.
	The pump is undersized, worn or crack in the housing.	Select bigger pump or change pump.
	Test: If by turning adjustment **1** with the pump running the pressure does not rise above 5 bar, even with a smaller bypass valve inserted, the problem should be sought at the pump, at the connection between the pump and the valve or the pulsation damper, if available.	
Up-start too hard	Adjustment **1** closed too far.	Adjust bypass pressure.
	Bypass flow guide **U** too small (slots too narrow).	Insert bigger bypass flow guide (see 'flow guide charts' on KV-datasheet).
	O-Ring **UO** on bypass flow guide **U** is leaking.	Change O-Ring → see KV spare parts list.
	Star to delta motor switch period is too long.	0.2-0.3 sec. is sufficient.
	Excessive friction on the guide rails or in the cylinder head.	Cannot be eliminated through valve adjustment.
Elevator slows down but over travels the floor level.	Coil **A** is de-energized too late.	Check electrics. See Ⓐ below. Change position in the shaft.
	Adjustment **5** (soft-stop) is closed too far.	Turn out adjustment **5**.
	Adjustment **1** is closed too far.	Adjust bypass pressure.
Relief-Valve not adjustable to lower value.	Adjustment **1** is closed too far.	Adjust bypass pressure.
	½" pipe thread connection in return line **T** should not exceed 14 mm.	With tape threads, 4-6 threads of engagement is sufficient.
Elevator doesn't reach full speed.	Bypass valve does not close. Piston orifice is contaminated.	Clean the dirt in the bypass flow guide orifice or change the flow guide.
	Adjustment **1** closed too far.	Adjust the bypass pressure.

Valves are already adjusted according to available data.
Check electrical operation before changing valve settings.

Ⓐ To check the operation of the coils, remove hexagon nut (19 mm). By lifting the coil, the noticeable magnetic force of a live coil can be felt. In addition, the lift function can be changed by lifting off the coils, for example, it is possible to simulate levelling speeds, to test accelerations and decelerations.

If the coil gets too hot, the coil has to be mounted onto the solenoid and the following adjustments have to be carried out on normal travels from floor to floor until the coil cooled down again.

Standard settings: Adjustment **1** level with flange face. Adjustment **5** (KV1S & KV2S) level with flange face. Turn in pressure relief valve **S** completely, then turn out **S** for 1½ turns.

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BLAIN HYDRAULICS GmbH

Entwicklung und Herstellung von qualitativ hochwertigen Ventilen sowie Sicherheitsbauteilen für Hydraulik-Aufzüge

KV Elevator Control Valve Trouble Shooting (2020)

DOWN Travel

EN ISO 9001

Problem	Possible cause	Recommended
No Down Start (Elevator remains at floor)	Coil **D** not energized or voltage too low.	Check electrics. See Ⓐ below.
	Adjustment **6** is closed too far.	Turn out adjustment **6**.
	O-ring **YO** on down valve **Y** is leaking.	Change O-Ring → see KV spare parts list.
KV2 only: Down start but no full speed	Coil **C** not energised or voltage too low.	Check electrics. See Ⓐ below.
	Adjustment **7** (full speed) closed too far.	Turn out adjustment **7**.
	Down valve flow guide **X** too small (slots too narrow).	Insert larger down valve flow guide (see 'flow guide charts' on KV-datasheet).
	Filter on solenoid **D** contaminated.	Check filter, clean if necessary.
KV2 only: No down levelling. Elevator stops before floor level	Coils **C** and **D** are reversed.	Swap coils **C** and **D**. See Ⓐ below.
	Adjustment **9** turned in too far.	Turn out adjustment **9** to about 0.05 m/s levelling speed.
	Pressure setting of **KS** too high.	Turn out adjustment **KS**.
KV2 only: No deceleration into levelling speed. Elevator travels through floor level	Solenoid **C**: needle **DN** and seat **S6** contaminated or damaged.	Clean or change needle and seat.
	Coil **C** does not de-energize.	Check electrics. See Ⓐ below. Slow down switch is set to low (reaction is too late).
KV2 only: Deceleration into levelling speed. Elevator travels through floor level	Down levelling speed is too fast.	Turn in adjustment **9** until the lift stops level with the floor or to about 0.05 m/s (recommendation).
	Solenoid **D**: needle **N6** and seat **S6** contaminated or damaged.	Clean or change needle and seat.
	Orifice in down flow guide **X** and/or down levelling flow guide **Y** is blocked or contaminated.	Clean or change down flow guide **X** and/or down levelling flow guide **Y**.
KV2 only: Braking is too hard & stop is too soft. (Elevator travels through floor level)	Down valve X (Ø 0.2mm orifice; brass) & down leveling valve **Y** (Ø 0.4mm orifice; steel) are reversed.	Swap down valve **X** & down leveling valve **Y**.
Elevator sinks quickly	Solenoid **D** tube not screwed down tight.	Tighten solenoid **D** tube.
	Damage on down valve **X** and/or **Y** or check valve **V**.	Check parts and change them if necessary.
Elevator sinks slowly due to inner leakage (relevelling).	For possible down leakage points see technical documentation 'System Leakage'.	
	Solenoid **D**: needle **N6** and seat **S6** contaminated or damaged.	Clean or change needle and seat.
	O-Ring **XO** of down valve **X** (KV2 only) or down (levelling) valve **Y** is leaking.	Change O-Ring → see KV spare parts list.
	O-Ring **VO** of check valve V is leaking.	Change check valve **V** → see KV spare parts list.
	O-Ring **HO** of manual lowering **H** is leaking.	Change O-Ring **HO** or change manual lowering.
Elevator sinks due to inner leakage of auxiliary equipment	Handpump **HP** is leaking.	Seal the hand pump.
	Contraction of oil during cooling especially from 35°C or above.	Consider oil cooler if hot oil is a problem.
	Micro drive **MD**, door lock valve **L10** or **L20** are leaking.	When possible isolate and check.

Valves are already adjusted according to available data.
Check electrical operation before changing valve settings.

Ⓐ To check the operation of the coils, remove hexagon nut (19 mm). By lifting the coil, the noticeable magnetic force of a live coil can be felt. In addition, the lift function can be changed by lifting off the coils, for example, it is possible to simulate levelling speeds, to test accelerations and decelerations.

If the coil gets too hot, the coil has to be mounted onto the solenoid and the following adjustments have to be carried out on normal travels from floor to floor until the coil cooled down again.

Standard settings: Adjustments **7** & **9**, screw heads level with the hexagon heads.

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