Motor Contactor Not Pulling In or Chattering: Check Table

Date: 29.10.2026 · Rev. 1

Article address: https://drgmotor.com/en/blog/electric-motors/contactor-not-pulling-in-chattering

Technical assumptions

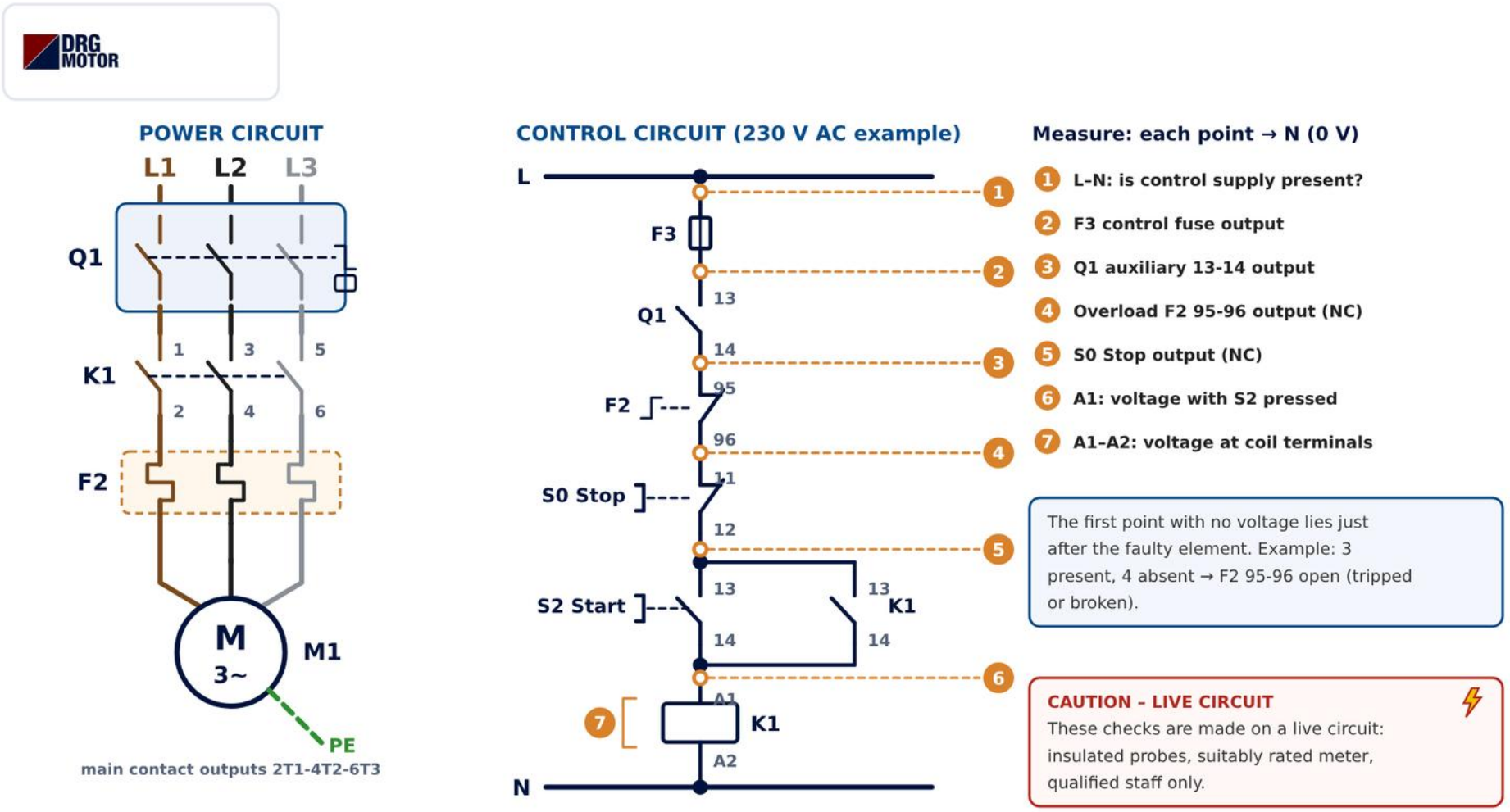
- 400 V 50 Hz three-phase supply; control circuit in the example at 230 V AC (L–N) with F3 control fuse.
- Coil voltage is read on the contactor itself; 24 V AC/DC and 230 V AC are example values.
- Terminal names (A1-A2, 13-14, 95-96, 2T1-4T2-6T3) follow common practice; the device's own wiring diagram prevails.
- Measurements marked with a lightning symbol are made live; all other checks only after isolation is verified.

Safety notice

- This content is for technical information only. Wiring, measurement and commissioning must be carried out by qualified electrical personnel, following lock-out and verification of de-energised state, and in line with the motor and device manufacturer's documentation.

Suitable DRG motors and store

- DRG-90L-4 (1,5 kW): https://drgmotor.com/en/buy-electric-motors-online/1-5-kw-1500-rpm-three-phase-motor-aluminium-drg-90l-4
- DRG-100L2-4 (3 kW): https://drgmotor.com/en/buy-electric-motors-online/3-kw-1500-rpm-three-phase-motor-aluminium-drg-100l2-4
- DRG-112M-4 (4 kW): https://drgmotor.com/en/buy-electric-motors-online/4-kw-1500-rpm-three-phase-motor-aluminium-drg-112m-4
- DRG-132S-4 (5,5 kW): https://drgmotor.com/en/buy-electric-motors-online/5-5-kw-1500-rpm-three-phase-motor-aluminium-drg-132s-4
- https://drgmotor.com/en/buy-electric-motors-online

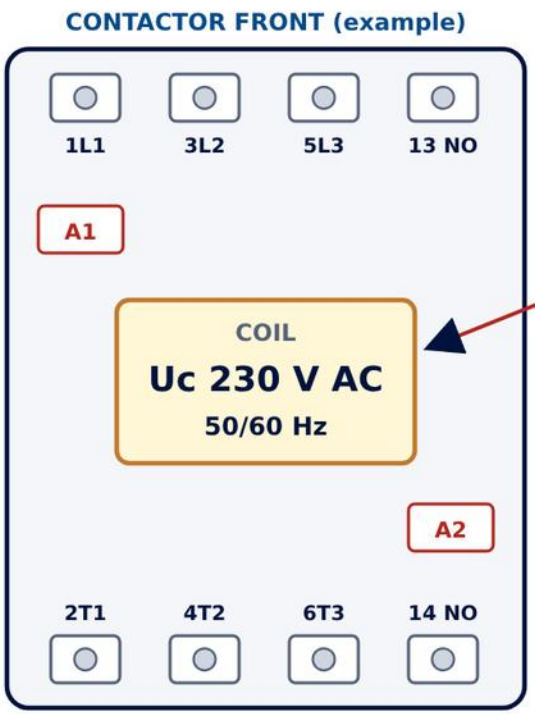


Ring (○) = test point, solid dot (●) = electrical junction. Terminal names vary by device; its own diagram prevails.

Contactor not pulling in: control circuit test points

F3 fuse · Q1 13-14 · F2 95-96 · S0 stop · S2 start · K1 13-14 self-holding · K1 coil A1-A2

Figure 1



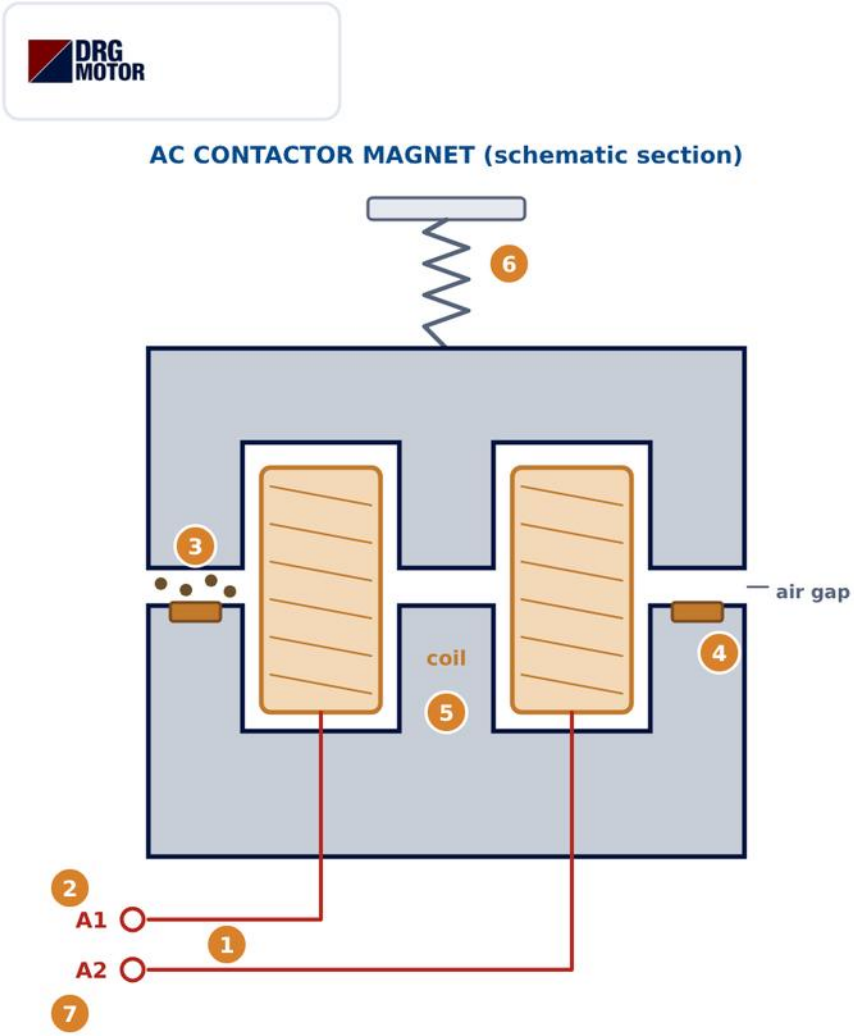
Control supply	Coil label	What happens?
230 V AC	230 V AC 50/60 Hz	✓ Match: pulls in firmly and holds quietly.
230 V AC	24 V AC	✗ Overvoltage: coil overheats and burns out quickly.
24 V AC	230 V AC	✗ Too low: does not pull in, or just hums.
400 V (L1–L2)	230 V AC	✗ Phase-to-phase supply: coil overstressed, burns.
24 V DC	24 V AC	✗ DC on an AC coil: only resistance limits current, overheats.
24 V AC	24 V DC	✗ AC on a DC coil: weak pull-in, chatter and hum.
24 V DC	24 V DC	✓ Match: A1 (+), A2 (−) polarity per device diagram.

Values are examples. Read the coil voltage on the contactor itself and compare it with the control transformer output.

Coil voltage match: how to read the coil label

A1-A2 coil terminals · 24 V / 230 V AC / DC coils · effects of a wrong supply

Figure 2



CAUSES OF CHATTER / HUM

1. **Low or unstable coil voltage**
   long control cable, weak transformer, dip at motor start
2. **Loose / oxidised connection**
   contact resistance at A1-A2, buttons, 95-96
3. **Dirty, rusty or oily pole faces**
   armature cannot close fully, gap remains
4. **Broken shading ring**
   armature releases as flux passes zero: chatter
5. **Wrong coil**
   voltage, AC/DC or frequency not matching label
6. **Mechanical binding**
   debris, tilted mounting, spring, damaged guide
7. **Bouncing control contact**
   pressure switch, float, loose button: on-off cycling

A healthy AC contactor may hum faintly when closed; loud buzzing or chatter is a fault. Cleaning and part replacement are done de-energised.

Why does a contactor chatter? Magnet and control causes

Shading ring, pole faces, air gap, coil voltage, control chain

Figure 3

DRG MOTOR

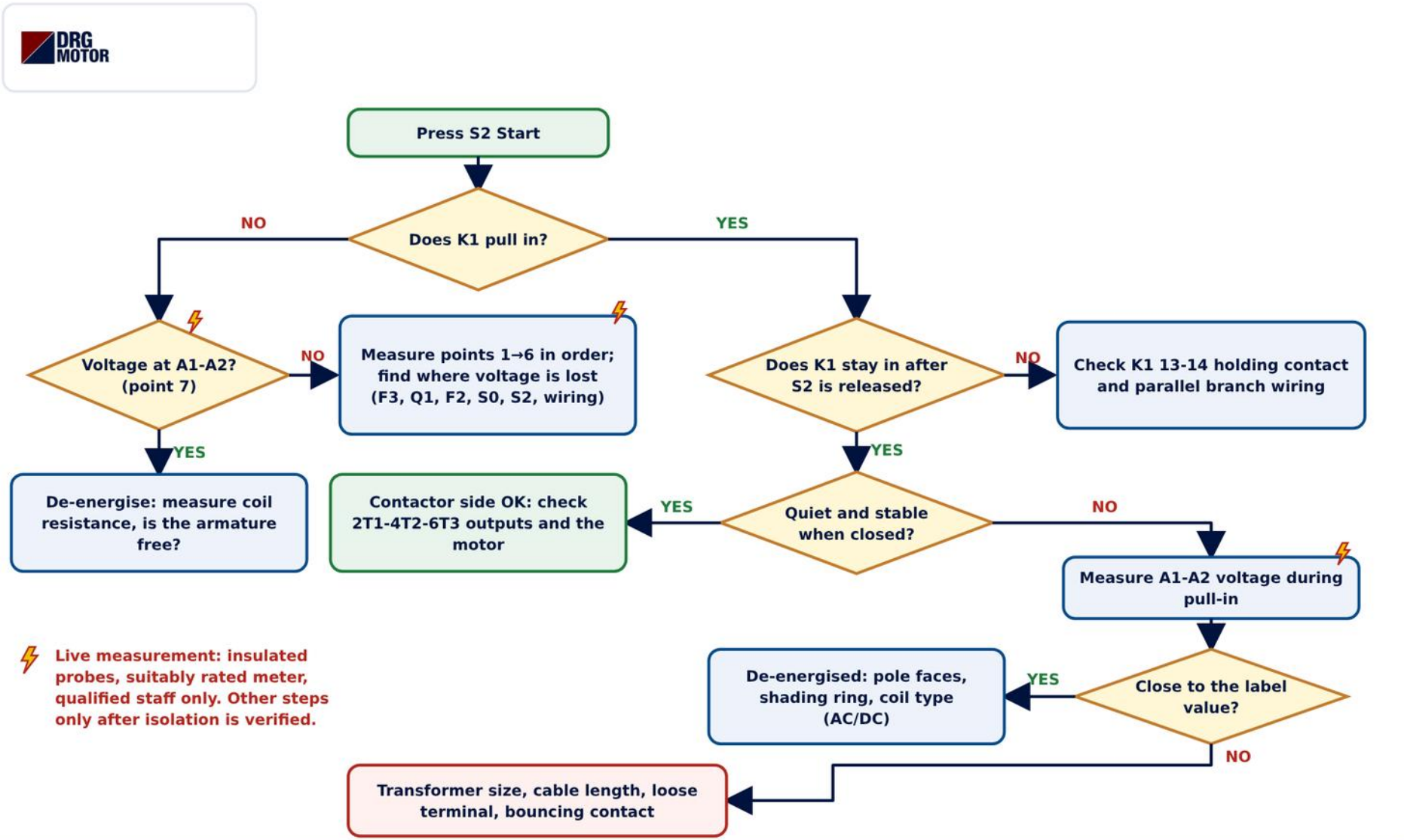
Symptom	Check (Figure 1 points)	Possible cause
1 **No sound at all when Start is pressed**	⚡ Measure points 1→6 in order	F3 blown, F2 95-96 open, S0 or wire broken, Q1 not closed
2 **Voltage at A1-A2 but no pull-in**	De-energise: coil resistance, free armature	Open/burnt coil, mechanical binding
3 **Holds while pressed, drops on release**	K1 13-14 contact and parallel branch wiring	Self-holding missing/wrong terminal, NC used
4 **Hums and closes slowly**	⚡ A1-A2 voltage during pull-in	Low voltage, weak transformer, long cable, loose terminal
5 **Voltage correct but chattering**	De-energised: pole faces, shading ring	Dirt/rust/oil, broken ring, worn magnet
6 **Pulls in and drops repeatedly**	⚡ Follow each contact in the chain	Bouncing pressure/float switch, loose terminal
7 **Coil gets hot and soon burns**	Coil label ↔ control supply	Wrong voltage, AC/DC mixed up, armature not closing
8 **K1 closes, motor not turning / humming**	⚡ Three phases at 2T1-4T2-6T3	Burnt main contact, phase loss, motor-side fault

⚡ **Checks marked ⚡ are done on a live circuit (insulated probes, rated meter, qualified staff). Others only after isolation is verified.**

Contactor fault table: symptom → check → possible cause

Numbers refer to the test points in Figure 1 · values and terminal names vary by device

Figure 4



Contactor troubleshooting flowchart

No pull-in · drops on release · chatters — in which order to check

Figure 5