Troubleshooting

In this chapter you will find all problems known to us whether experienced and remedied on our own account or reported and solved within the context of a support inquiry. If further information on a specific topic is needed, ongoing explanations are linked in the table and will lead you there when needed.
Use the defects / issues table below to look up hardware, software and slicing problems.
Error messages displayed in the **Log** menu of the GUI are explained in the error messages overview.

Defects / Issues

No.	Symptom	Possible cause(s)	To do	Additional information
1	Drive gear starts working into the filament; drive gear teeth start clogging; slipping of the drive gear	Increased friction in the feed system by: - bent filament strand - bent or constricted supply hose - false insertion of filament strand in the inlet - wryly coiled filament spool - jammed dust wiping sponge	✔ Make sure that: - the filament is coiled spirally and free of kinks; - the supply hoses are not constricted, free of kinks and laid out in adequate radii; - the filament is inserted in the inlet at an angle of 90°	Software manual v1.0.5 or Software manual v1.1.0 [1]
		False idler lever preload.	✔ Measure and correct the idler lever tension.	Service guide
		Nozzle tip is clogged by flexible (e.g. textile fibers) or solid particles (e.g. soot particles).	✔ Disassemble and clean the extruding components.	Disassembly, Cleaning
		Nozzle tip is clogged due to print bed leveled too high and increased internal pressure from tip running through solidified material.	✔ Run the [Print Bed Leveling] wizard.	Tips & Tricks, Software manual v1.0.5 or Software manual v1.1.0 [1]
		Filament diameter exceeds tolerances.	✔ Measure the filament diameter and roundness at at least 5 points with a distance of 0.5 m. Measure minimal two times at the same position at an angle of 90°. The diameter must lie between `2.75 - 2.95 mm (2.85±0.1 mm)` ✔ Also check that the filament is free of kinks and bulges. If the diameter exceeds the stated value or there are other irregularities, there is a manufacturing fault in the filament. Contact your filament supplier for service. If you ordered the filament directly from Kühling&Kühling, contact our technical support for replacement.	Technical support, Tips & Tricks
		Print speed too high for the currently installed material.	The standard settings for the RepRap Industrial have been extensively tested for our snow-white ABS. Other materials show different melting behavior and friction. Try the following when printing new materials: ✔ Decrease the print speed. ✔ Always use very latest Slic3r profiles from our GitHub repository as starting point for individual profile customization.	Slic3r software manual Kuehling&Kuehling GitHub repository
		Filament extruded at too low temperature due to deviation of value measured at the hot end heater and real temperature at the nozzle tip.	✔ Check the quality of the extruded filament and increase the extrusion temperature 5 - 10 °C if required.	Knowledgebase
		Target temperature is not reached due to lack of contact between heating block and extruder barrel.	✔ Remove the heating block, thoroughly clean the bore of plastic residues if necessary (only sheer metal must remain) and re-install. Fasten the set screw tightly.	Service guide

No.	Symptom	Possible cause(s)	To do	Additional information
2	Drop formation (blobs)	High-resolution models result in G-code-resolution finer than the printer can render; increased memory usage leads to buffer data loss and pause times.	✔ Increase the *minimum detail resolution* of the Slic3r software.	Service guide, Slic3r software manual
		Downsizing (scaling) of high-resolution models in Slic3r increases the resolution further; 3D printer cannot translate resolution adequately	✔ Downscale the model before exporting it as .stl and adding it to Slic3r.	
3	Warping of the print object during or after the print; extruded strands do not merge, are deformed and/or laid on the print bed instead of being pressed; strands are separated by print head movement	Poor **first layer adhesion**		Tips & Tricks, Knowledgebase
		Incorrectly leveled print bed (gap between print bed and extruder nozzle tip too wide)	✔ Run the [Print Bed Leveling] wizard.	Tips & Tricks, Software manual v1.0.5 or Software manual v1.1.0 [1]
		Print bed temperature too low	✔ Check temperature in the *Manual Control* menu; if necessary, increase print bed temperature in the Slic3r software (Filament settings).	Slic3r software manual
		Wrong Slic3r settings	✔ Adjust the Slic3r settings for the first layer.	Tips&Tricks
		Separating agents (e.g. fingerprints) on the print bed	✔ Clean the print bed with acetone.	Service guide
		Z-positioning inaccurate due to:		
		- stick-and-slip effects when shafts are very dry (see *5* also)	✔ lubricate with *Ballistol Universal* NOTICE *Only valid for RepRap Industrial 3D printers up to hardware revision 1.1.0.*	Service guide
		- settling processes of the spindle adjusting ring (e.g. during transport).	✔ Reposition the adjusting ring and refasten the set screw. Follow the description given in the service guide.	Service guide
4	Bad layer binding	low print bed / extrusion temperature	✔ Check temperatures in the *Manual Control* menu; if necessary, readjust the extruder temperature in the Slic3r software (Filament settings). ✔ Check the material presets in the *Setup* menu; open the backend-setup and adjust values if necessary	Slic3r software manual
5	Juddering of the print table during homing.	Very dry shafts lead to increased stick-and-slip effects.	✔ lubricate Z-shafts with *Ballistol Universal* NOTICE *Only valid for RepRap Industrial 3D printers up to hardware revision 1.1.0.*	Service guide
6	Increasingly rough vertical surfaces	Very dry shafts may lead to increased vibrations of the extruder.	✔ lubricate X- and Y-shafts with *Ballistol Universal* NOTICE *Only valid for RepRap Industrial 3D printers up to hardware revision 1.1.0.*	Service guide

No.	Symptom	Possible cause(s)	To do	Additional information
7	Homing the X-axis leads to extruder head collision and blackout of the controls.	X-axis limit stop bent by crash due to misinterpreted home-position	✔ Bent back limit stop with tweezers	
		G-code home positions of X-axis incorrect.	✔ Check Slic3r for correct axes settings (depending on the release versions of the 3D printer version and the slic3r software)	Service guide
8	Status indicator on the touchscreen diplays “Offline” (after booting).	USB-to-Serial chip (RUMBA board) is in DFU mode (firmware programming mode); firmware is lost or corrupted	✔ More information and remedy see ⇒	Service guide
9	Printed circular structures (holes, cylinders) are deformed and out of round.	Backlash in the X- and/or Y-axis.	✔ Calibrate backlash.	Service guide
			✔ Check timing belt tension.	Service guide
			✔ Check for loosened X-axis and/or Y-axis drive pulley. Refasten the set screws with a #1.5 Allen key.	Technical support
10	Print starts off-center	Wrong print bed center or origin settings in Slic3r.	✔ Check for correct settings according to your Slic3r-hardware combination.	Service guide
11	Thin extrusion strands lead to: gaps between perimeters; bad layer binding; loose, open-stranded top/bottom layers; loose, uneven honeycomb infill	Under-extrusion; extrusion multiplier too low.	✔ Run the [Extrusion Calibration] wizard; save the calculated multiplier in the Slic3r filament profile.	Software manual v1.0.5 or Software manual v1.1.0[1], Tips&Tricks, Slic3r manual
12	Profile names are not readable in Slic3r drop-down menus.	Incompatibility of Slic3r and Windows operating software.	✔ Rename profiles with shorter description. Problem may be solved in future releases of Slic3r.	Tips&Tricks
13	Upon boot, the touchscreen stays black for more than 5 minutes and will not display anything. Inside the electronics chamber, the block of three LEDs on the BeagleBone Black is solid blue (no flashing).	The operating system for the BeagleBone Black embedded computer could not be loaded from its SD card.	✔ Switch off the power supply main switch, switch on again. If the system is successfully booting now, the problem was only temporary and is resolved.	
			In case the behavior recurs frequently, the Micro-SD card may be malfunctioning. ✔ Try building a new Micro-SD card as detailed in the Software & Firmware upgrade guide	Software & Firmware Upgrades
14	Timestamps of log-file entries are incorrect and/or inconsistent.	- Printer is connected to a local network that does not provide internet access (no gateway available). - LAN network is firewall protected.	✔ Check your network's firewall and internet settings → free internet access must be provided for NTP synchronisation through port 123/UDP	
	Timestamps of log entries are reset at re-start.	The 3D printer cannot keep accurate time by itself, it needs to occasionally synchronize with a public NTP time signal server (e.g. during boot)	✔ re-configure the printer to fetch a time signal from an in-house NTP-server if available	Tips&Tricks

No.	Symptom	Possible cause(s)	To do	Additional information
15	Filament bends and twists between drive gear and hot-end inlet. The filament is not conveyed to the nozzle.	- Flexible materials (e.g. TPEs): the gap between drive gear and hot-end inlet is too wide for printing without modification.	✔ Download, print and install the required adapter at Kühling&Kühling GitHub	Knowledgebase
		- Build chamber temperature is too high for temperature-sensitive materials.	✔ Check the Vicat softening temperature of the material and reduce the build chamber temperature to a value 5 - 10 °C below.	Tips&Tricks
16	The web-interface is not contactable via the network.	- URL spelling mistakes	✔ Check for correct spelling of the URL.	Software manual v1.0.5 or Software manual v1.1.0 [1]
		- Network does not provide DHCP.	✔ Ask your system administrator for help.	
		- Printer and PC are not connected to the same network.		

[1]) If you are unsure about the valid software manual, check here.

Error messages

The *Log* tab of the touchscreen and of the web interface contain the communication and operation commands of the RepRap Industrial since the day of initial commissioning, including ERROR messages about false statuses (e.g. overheating, connectivity).
The following list provides all possible ERROR messages that may be found in the log file together with an explanation on the possible causes and, if required, available remedying procedures.
An ERROR message does not necessarily mean that the 3D printer has a malfunction. Such messages can also appear ...
Use the below list if an ERROR message appears in your log file and you are unsure about its meaning and effects.

No.	Message	Possible cause(s)/ effects	To do	Further information
1	*Printer set into dry run mode until restart!* followed by internal test (example): *extruder 0: temp sensor defect extruder 1: working extruder 2: working heated bed: working*	The named thermistor measured a limit value derivation. The measured temperature exceeded/came below the allowable limit value.	✔ Check cable connections of the thermistors for damage or wear. If the fragile cables of the thermistor are broken, the heating unit must be replaced.	Limit values are: `0 … 300 °C` Request a quote for the fully assembled replacement part via sales@kuehlingkuehling.de