# 8D | SYSTEMATIC PROBLEM SOLVING

❯ Mandatory activities
❯ Optional activities

**KÄRCHER**

| STEP | WHAT HAS TO BE DONE? | TOOLS | RESULTS |
|---|---|---|---|
| **D1** Teambuilding | ❯ Name a person responsible for the problem solving process. The person must be trained in using the 8D method. ❯ Specify the team members by name who are to provide specialist support to the person responsible | 8D REPORT | ❯ Team members have been chosen ❯ Everyone can see who the contact persons are ❯ The experts for this issue can be determined in the future when similar problems occur |
| **D2** Describe and define the problem by Facts & Figures | ❯ Describe the problem as precisely and completely as possible using Facts & Figures (What, Where, When, Which, How much, How critical, etc.) ❯ Check whether it is a repeat failure ❯ Conduct analyses to identify potential influencing factors, accumulations and correlations ❯ Specify the problem via IS/IS NOT Analysis | IS-/IS-NOT-ANALYSIS, TREND CHART, HISTOGRAM, PARETO DIAGRAM, PROBLEM HISTORY | ❯ Problem has been clearly and comprehensively described and quantified in open-ended terms regarding results ❯ Problem scope has been defined |
| **D3** Implement Containment Actions | ❯ Block / sort out / rework inventories (parts / devices) ❯ Stop production ❯ Implement 100% inspection (on a temporary basis) ❯ Place a Deviation Request for a Special Release ❯ Report unsafe product (at Kärcher: K-Failure) ❯ Initiate a product recall (at Kärcher: Service Bulletin Level 1) | BLOCK REPORT STOP REPORT, SPECIAL RELEASE, CHECK PLAN PAIS, AUDIT CHECKLIST, SERVICE BULLETIN | ❯ Customer is no longer confronted with the problem (due to treating the symptoms of the problem) ❯ Damage containment ❯ "Buying time" for sustainable problem resolution |
| **D4** Determine root causes | ❯ Determine possible root causes of the problem ❯ Use tools like 5-Why, Ishikawa and Gemba ❯ Verify root causes by cross-referencing with Facts & Figures as well as the analyses from step D2 ❯ Find out why the problem was not avoided or detected in the process | 5 WHY, ISHIKAWA DIAGRAM, GEMBA, CORRELATION DIAGRAM, COMPONENT EXCHANGE | ❯ The root causes of the problem are known and verified ❯ The reasons for non-avoidance or non-detection in the process have been found |
| **D5** Define Corrective Actions and Verify their effectivity | ❯ Define potential Corrective Actions ❯ Failure *avoidance* is preferable to failure *detection* ❯ Confirm effectivity of Corrective Actions via trials, tests, calculations, simulations, capability studies ❯ Define Corrective Actions which will permanently eliminate the root causes | POKA YOKE, TEST PLAN, CAPABILITY ANALYSIS, VALUE BENEFIT ANALYSIS, PAIR-BY-PAIR COMPARISON | ❯ Corrective Actions have been defined ❯ The effectivity of the actions in eliminating root causes has been confirmed |
| **D6** Implement Corrective Actions | ❯ Introduce / implement the defined Corrective Actions, anchor these within the organisation and update documents accordingly ❯ Make sure that the actions have no undesired side effects ❯ Set up an action plan for tracking the actions as necessary ❯ Rework / replace inventories (parts, devices) ❯ Roll back immediate actions (such as 100% inspection) | DRAWING SPECIFICATION, MAINTENANCE PLAN, WORK INSTRUCTION, SPARE PARTS LIST DISIS, TRAINING DOCUMENTS | ❯ Corrective Actions are firmly anchored within the organisation ❯ The problem no longer occurs ❯ Side effects are ruled out ❯ Inventory goods with failures are fixed |
| **D7** Implement Preventive Actions | ❯ Check if other products / devices / product versions / processes / plants may be affected by the same problem ❯ Ensure that similar problems cannot or are not "pre-programmed" to reoccur in the future ❯ Implement regular or temporary effectivity testing, such as via product audit, process audit or system audits | DESIGN GUIDELINES, PROBLEM HISTORY, PROCESS INSTRUCTION, AUDIT CHECKLIST, DESIGN FMEA PROCESS FMEA | ❯ Transfer the gained knowledge into - existing products / processes - future products / processes / projects (Lessons Learned) ❯ Weak points in the system / organisation eliminated |
| **D8** Conclude the problem solving process | ❯ Verify that all defined actions have been implemented ❯ Verify that all relevant information has been documented ❯ Inform all parties involved, affected or interested about successful conclusion of the process, sending an 8D report as appropriate ❯ Organise rework at customers (Kärcher: Service Bulletin) ❯ Thank the team members for their cooperation | 8D REPORT, SERVICE BULLETIN | ❯ Verify implementation of actions ❯ Documentation is complete ❯ The problem solving process is officially concluded and this has been communicated accordingly |