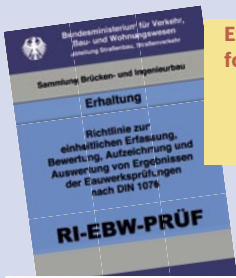


Inspection

Inspection of road structures is performed according to DIN 1076 which defines testing and monitoring of engineering structures forming part of highways and roads, in conjunction with the guideline designated RI-EBW-PRÜF. Structures of the federal road network undergo a major inspection every six years and a general inspection every three years. Structural inspection is an essential constituent of the Bridge Management System (BMS). Of essence here are an availability and regular updating of standardized, complete, reliable and comparable inventory / condition data. Accordingly, damage registration and evaluation must be performed on a universal platform, regardless of the inspection engineers, to permit reliable identification and classification of hazards and damage, as well as to optimize implementation of maintenance measures. Training courses for engineers in charge of structural inspection are an important element of quality assurance.

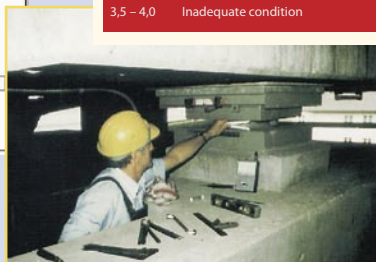


Evaluation of all damage according to the following criteria

- Stability
- Traffic Safety
- Durability

All individual damage assessment result in an overall condition grade:

1,0 – 1,4	Very good condition
1,5 – 1,9	Good condition
2,0 – 2,4	Satisfying condition
2,5 – 2,9	Sufficient condition
3,0 – 3,4	Insufficient condition
3,5 – 4,0	Inadequate condition



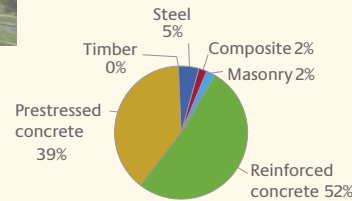
Bridge inventory

In order to make available general statistical information on the bridge stock of federal main roads, the Federal Ministry of Transport, Building and Urban Affairs has standard analyses drawn up every year.

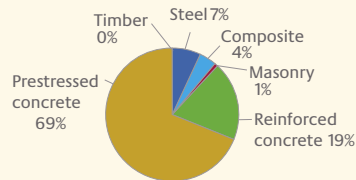
- The analyses comprise information on:
- Bridge statistics (number, area, length)
 - Distribution of condition indices
 - Age structure
 - Bearing capacity



Bridge stock according to number and type of construction



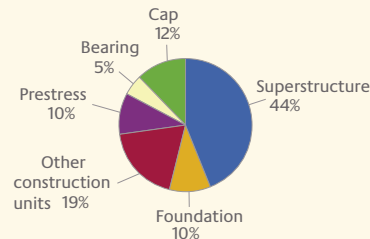
Bridge stock according to bridge deck area and type of construction



For special tasks additional detailed analyses can be carried out, for example concerning the distribution of serious damages among the construction units of structures with

- a bridge length of > 100m
- Durability rating of D > 2

Distribution of damages rated durability D > 2



Bridge Management System (BMS)

Bridges and other engineering structures forming part of road systems require to be systematically maintained in order to keep structures functions. Structural ageing, growing volumes of traffic and limited budget entail optimized maintenance planning on a nationwide basis. To optimize planning of measures and allocation of finances as well as to permit controlling, the federal and state administrations have developed a Bridge Management System (BMS).

- At the object level, analyses of structural data and damage provide information on possible maintenance measures (BMS-MV), costs incurred by owners, users and the environment, as well as details on future structural behaviour. A cost-benefit analysis of various strategies permits an evaluation of measure alternatives according to economic criteria. This ultimately leads to an ascertainment of appropriate measures and their urgency as an input for network-wide prioritisation (BMS-MB).

- Budgetary restrictions and grouping of measures require optimization at the network level (BMS-EP) which provides recommendations for maintenance planning over 6-year intervals. This is used as a basis for formulating maintenance program. For longer time periods, scenarios involving different maintenance strategies are analyzed and represented (BMS-SB).

