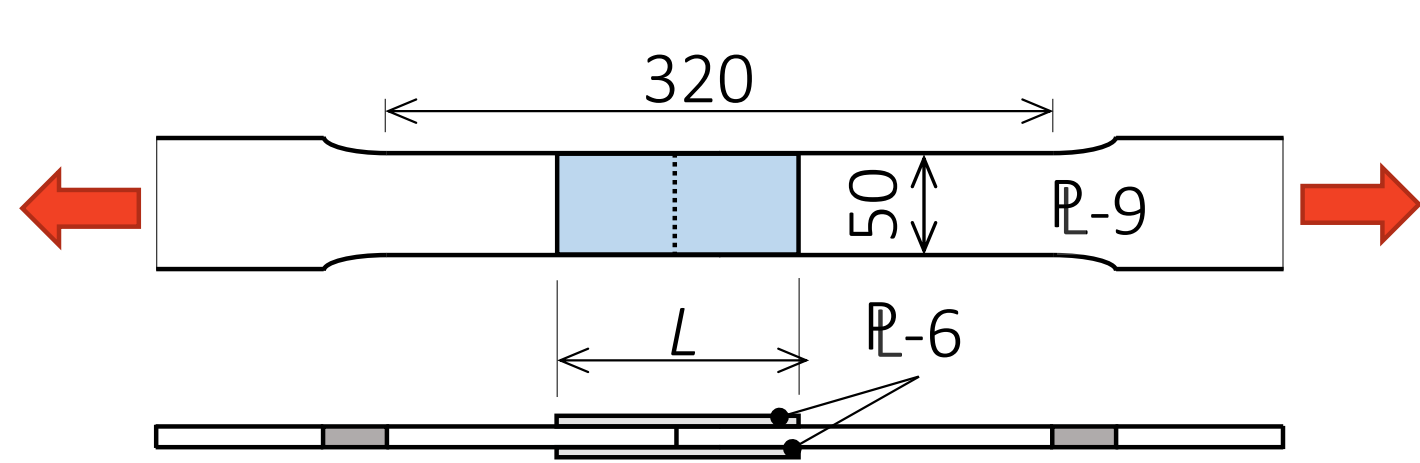


An Experimental Study on the Application of Structural Adhesive in Steel Connections

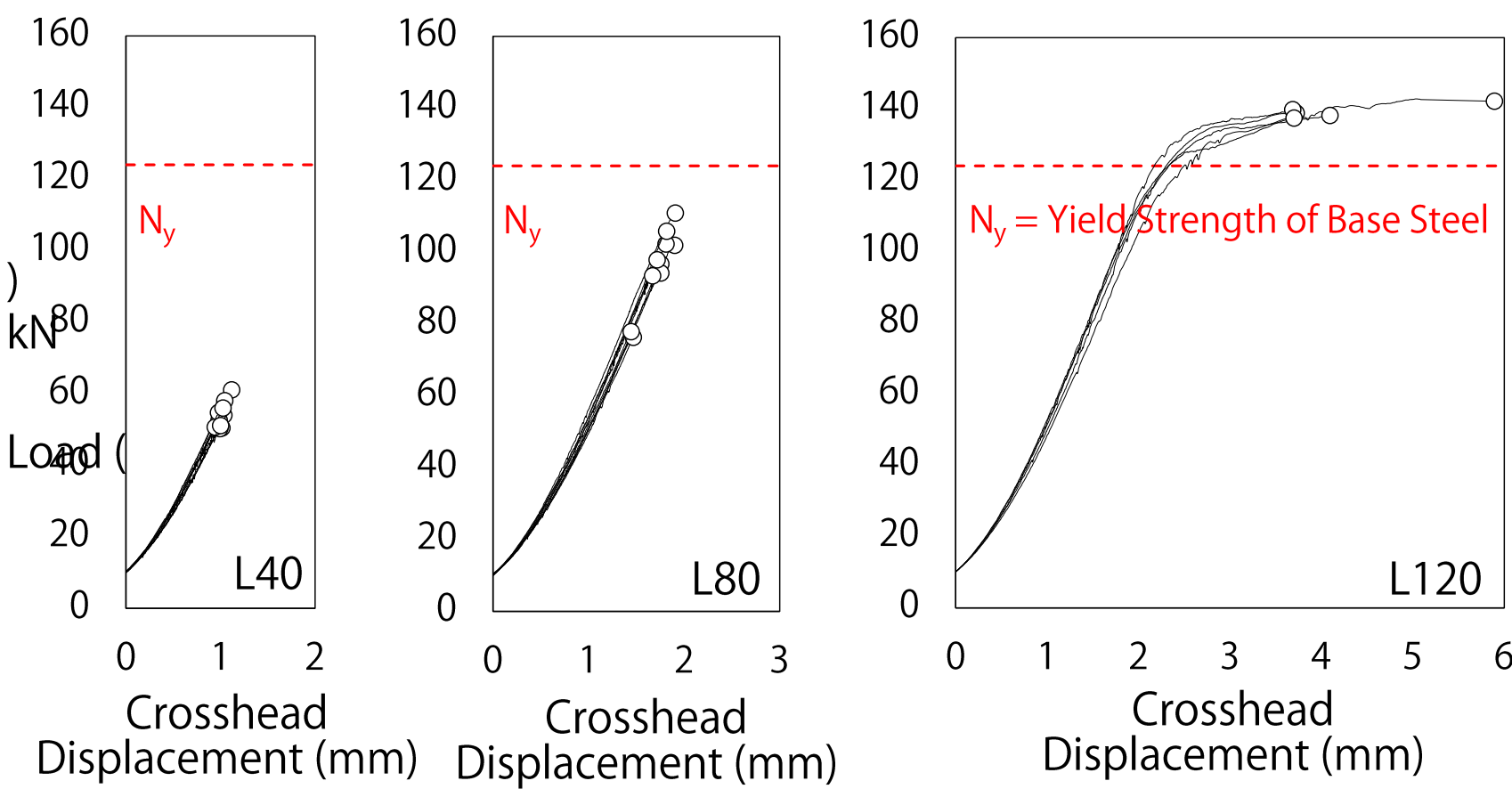
The fundamental mechanical properties and practical applications of adhesively joined steel connections are examined by various experiments.

Fundamental Mechanical Properties

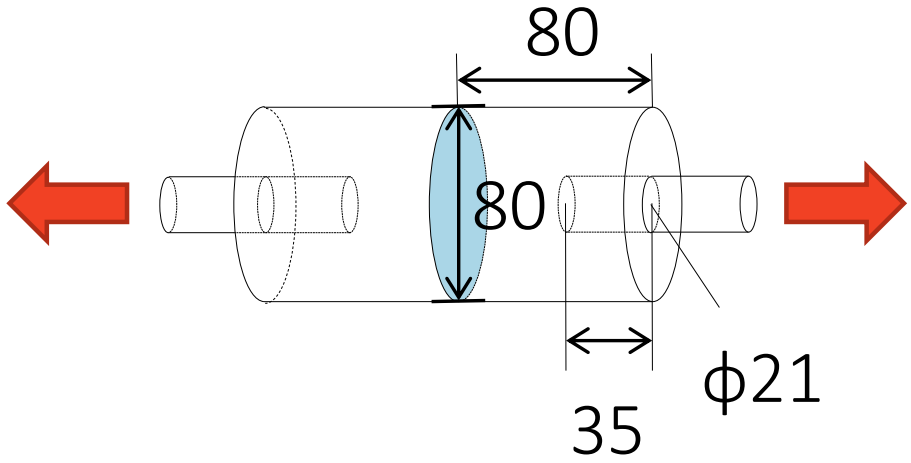
Double-Lap Shear Test



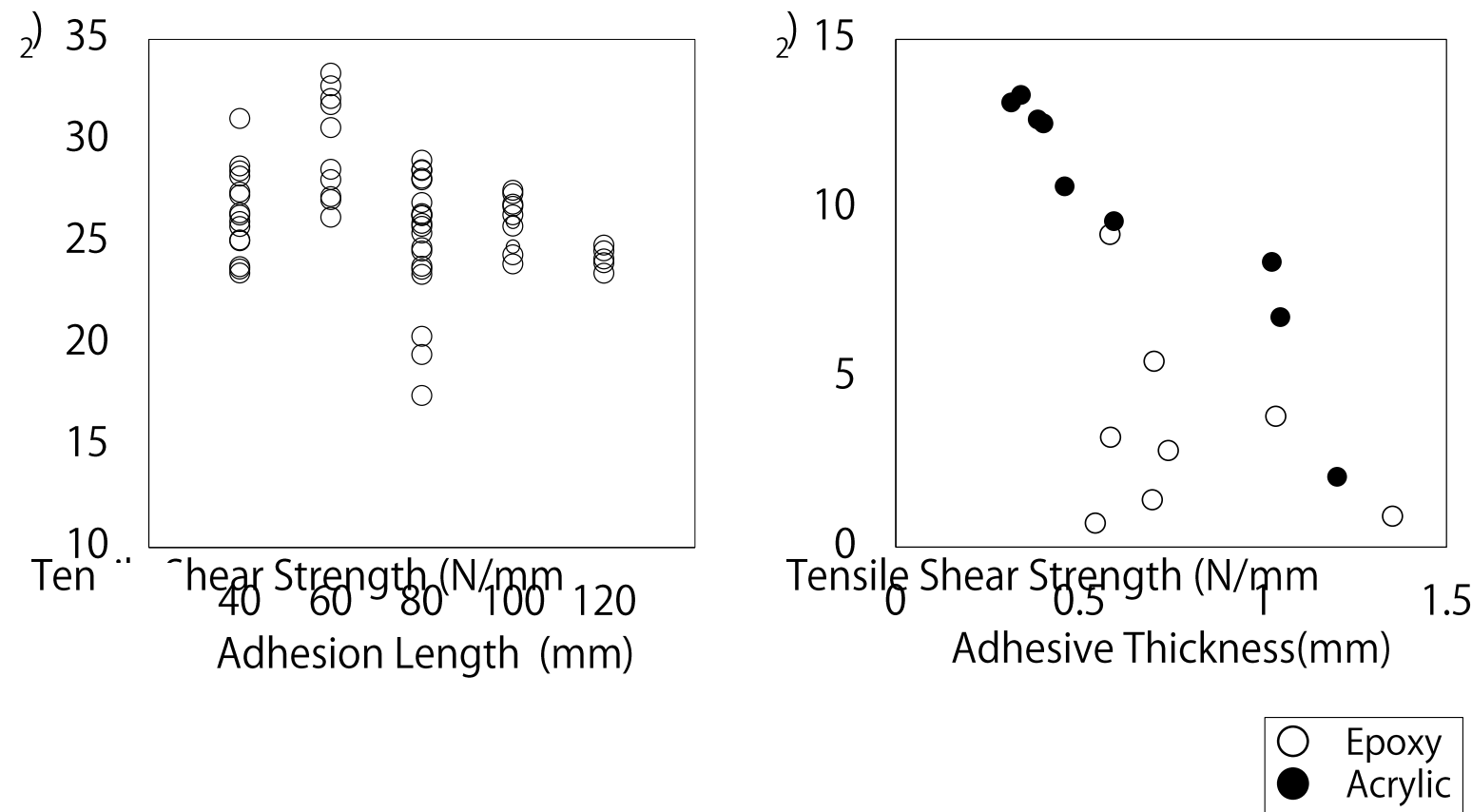
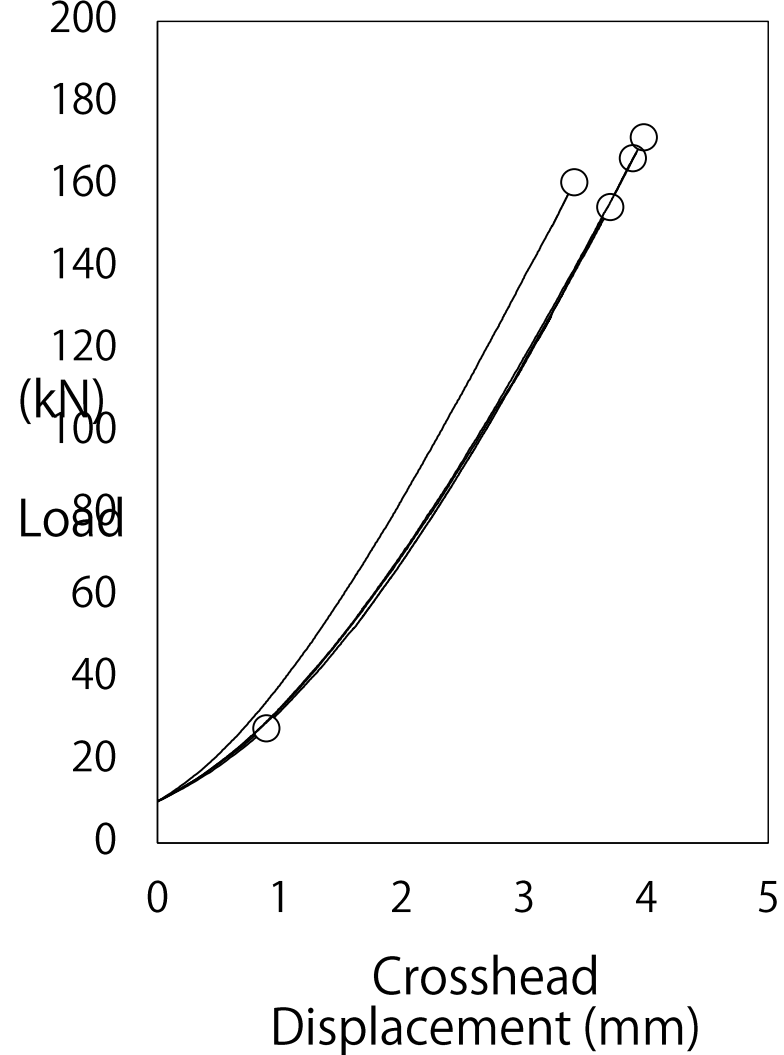
Specimen (unit: mm)



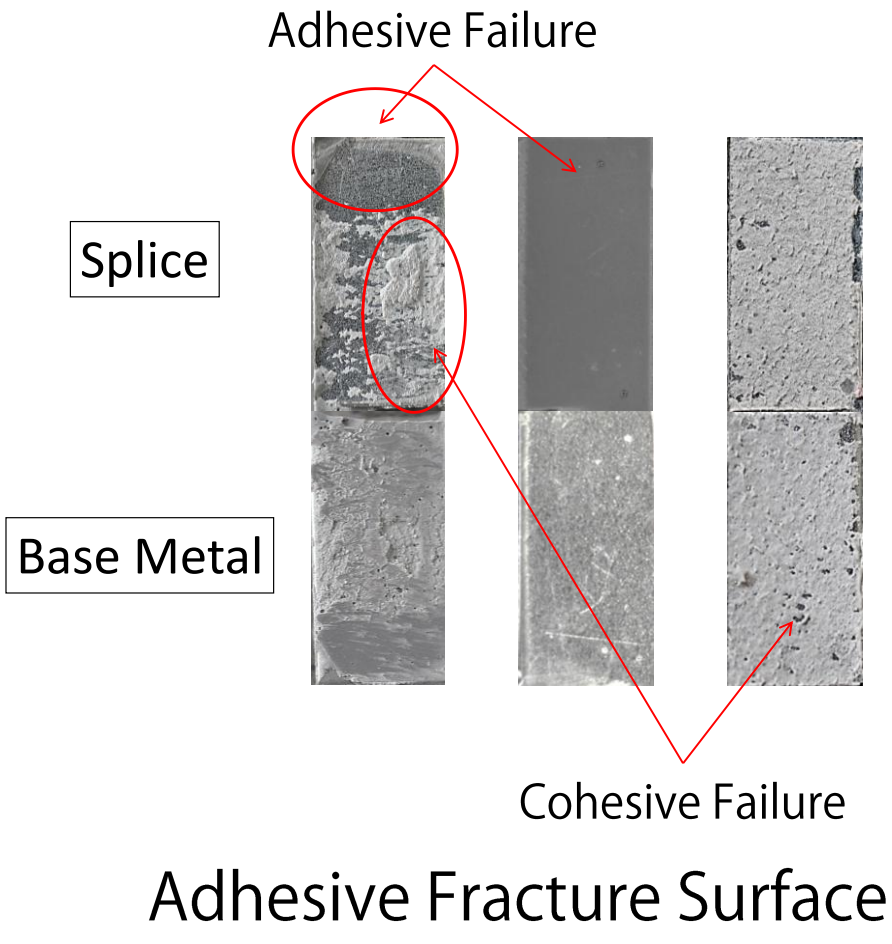
Tensile Test



Specimen (unit: mm)



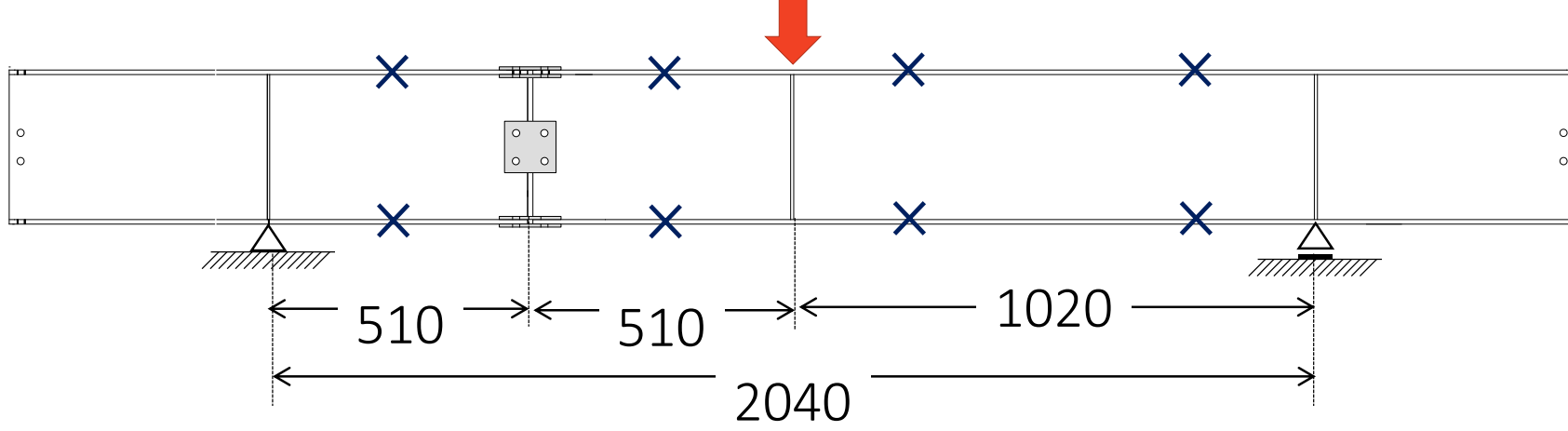
Dependency of the tensile shear strength on adhesion length and adhesive thickness was observed.



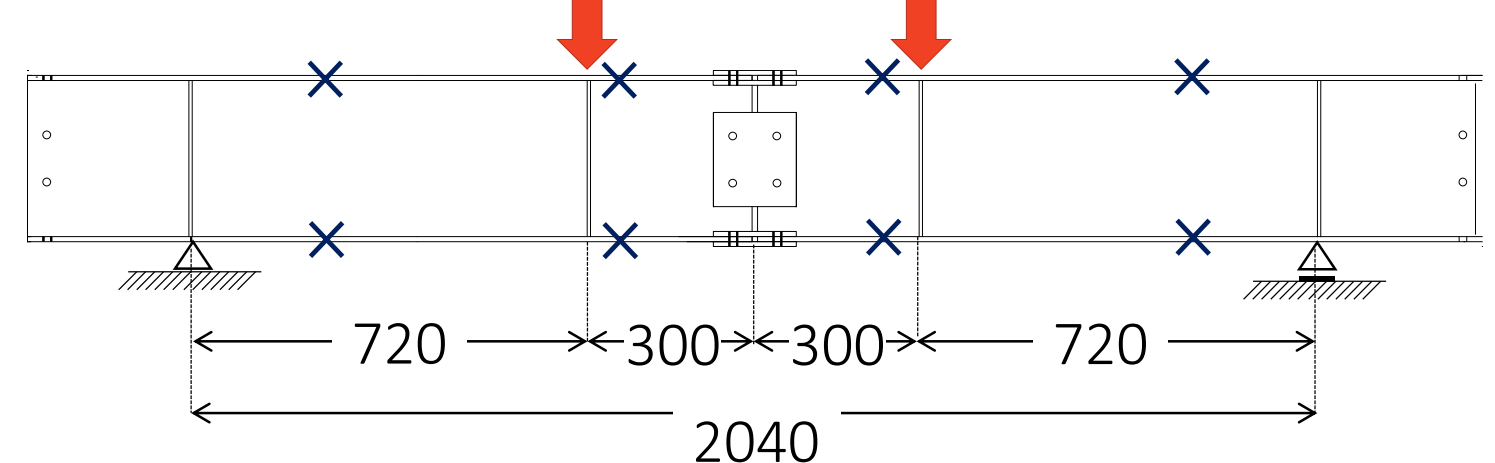
Proportion of cohesive failure increased with strength.

Practical Application

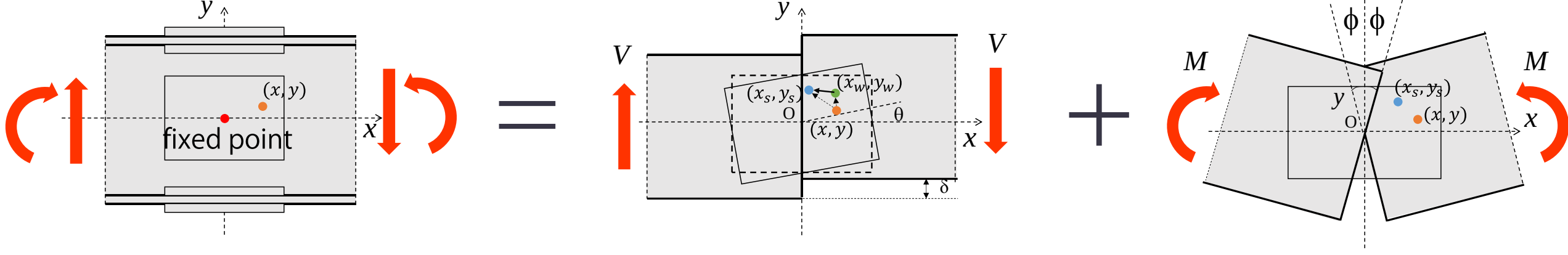
Spliced Steel Beam Test



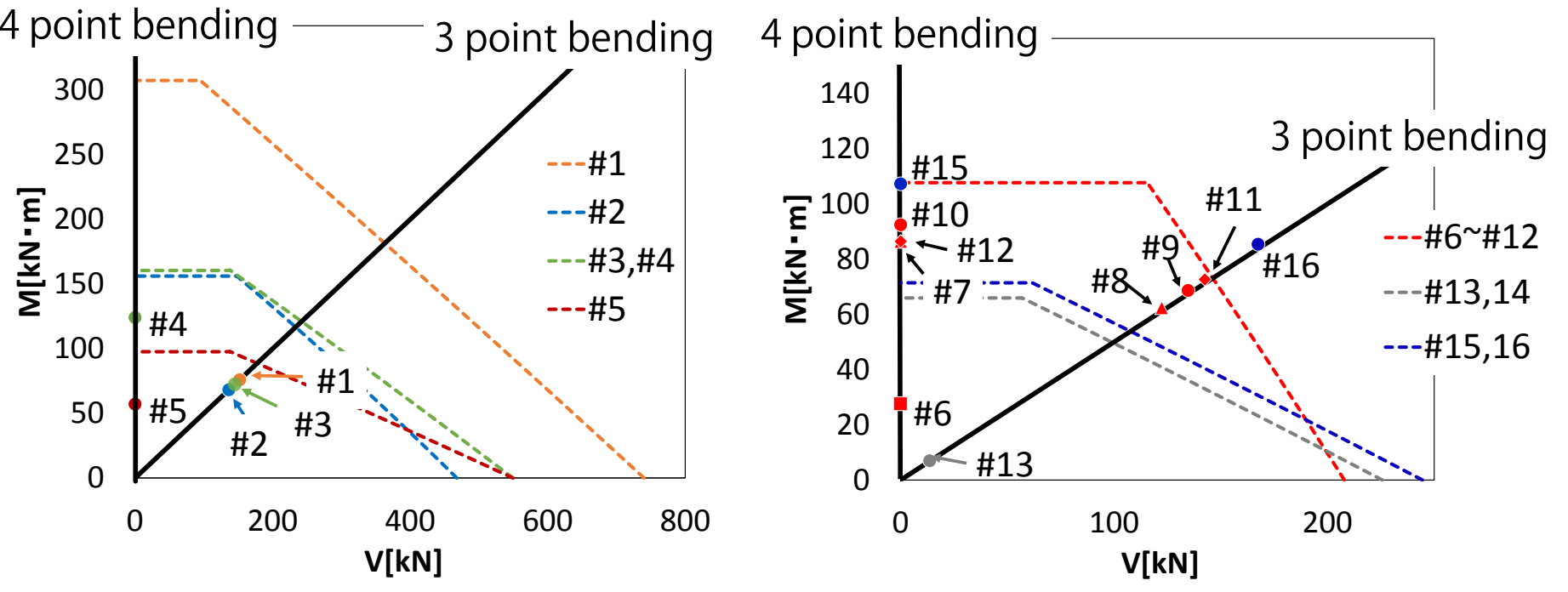
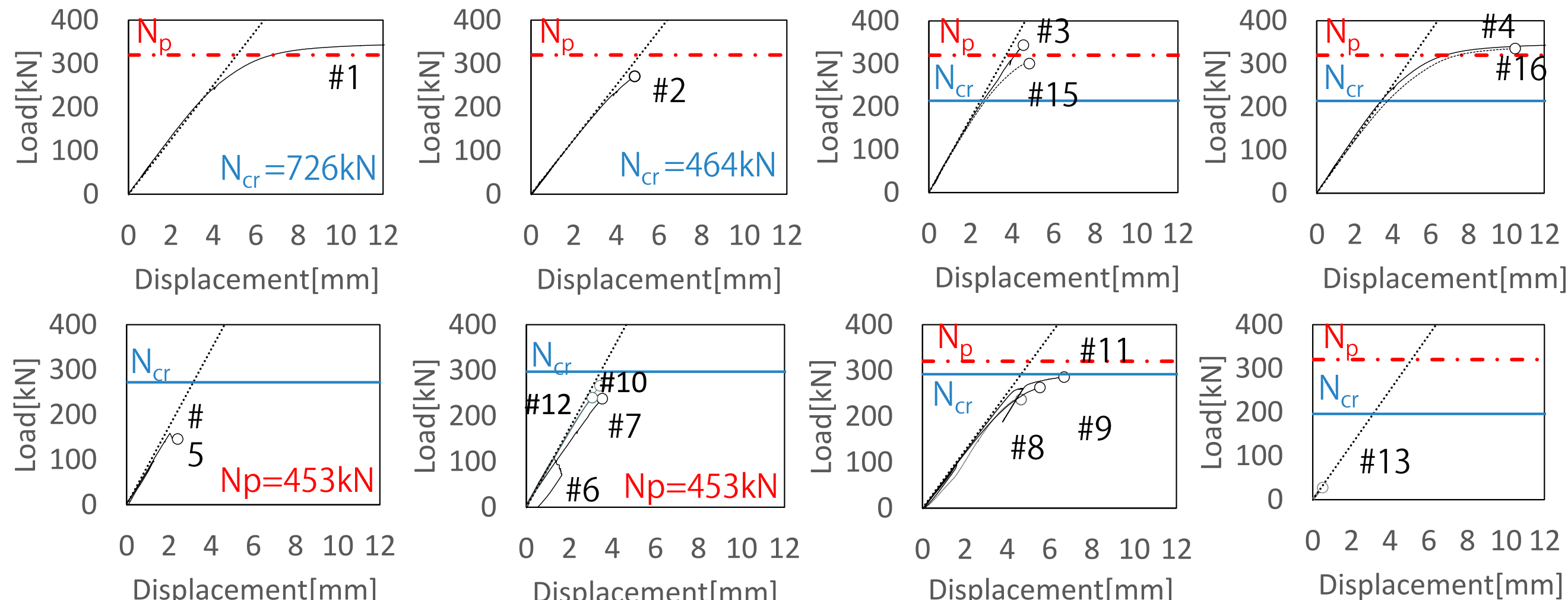
3 Point Bending Test (unit: mm)



4 Point Bending Test (unit: mm)



Design equation based on material test data and fundamental mechanics



Correlation Curve between V and M

N_p = Yield Load
 N_{cr} = Expected Load at Failure

Some specimens failed at the adhesive joints at a smaller load than predicted. Effort is continuing to improve the design equation.

