

Appendix 1

In this Appendix, the photos of the specimens taken after failure are shown in Figure A1.1, Figure A1.3 and Figure A1.5. Moreover, the displacement profiles measured by means of DIC or NDI (or LVDT when no photogrammetry measurements were performed) at the top and bottom fibre at selected load steps are shown in Figure A1.2, Figure A1.4 and Figure A1.6. In the plotted deformed shapes, the rigid body rotation of the beam was corrected in order to have zero vertical displacement at the end support and at the intermediate support (refer to Figure 5.1 for the scheme of the test setup and loading conditions and to Figure 5.2 for the crack pattern at peak load).

Note that, in specimens SC52, SC55 and SC67, the development of a diagonal crack close to the right support was followed by a drop in the applied load of 5-10%. These specimens however could be reloaded. In specimen SC52a, a shear crack developed close to the left support. The specimen was repaired by means of external plates fixed with prestressed bolts and retested: a second failure crack developed close to the point of contraflexure (SC52b, see Figure A1.1). In specimens SC55a and SC67a, a direct strut action developed in the uncracked compression zone above the critical shear crack and failure occurred due to crushing of the compression zone (see respectively Figure A1.1 and Figure A1.5).

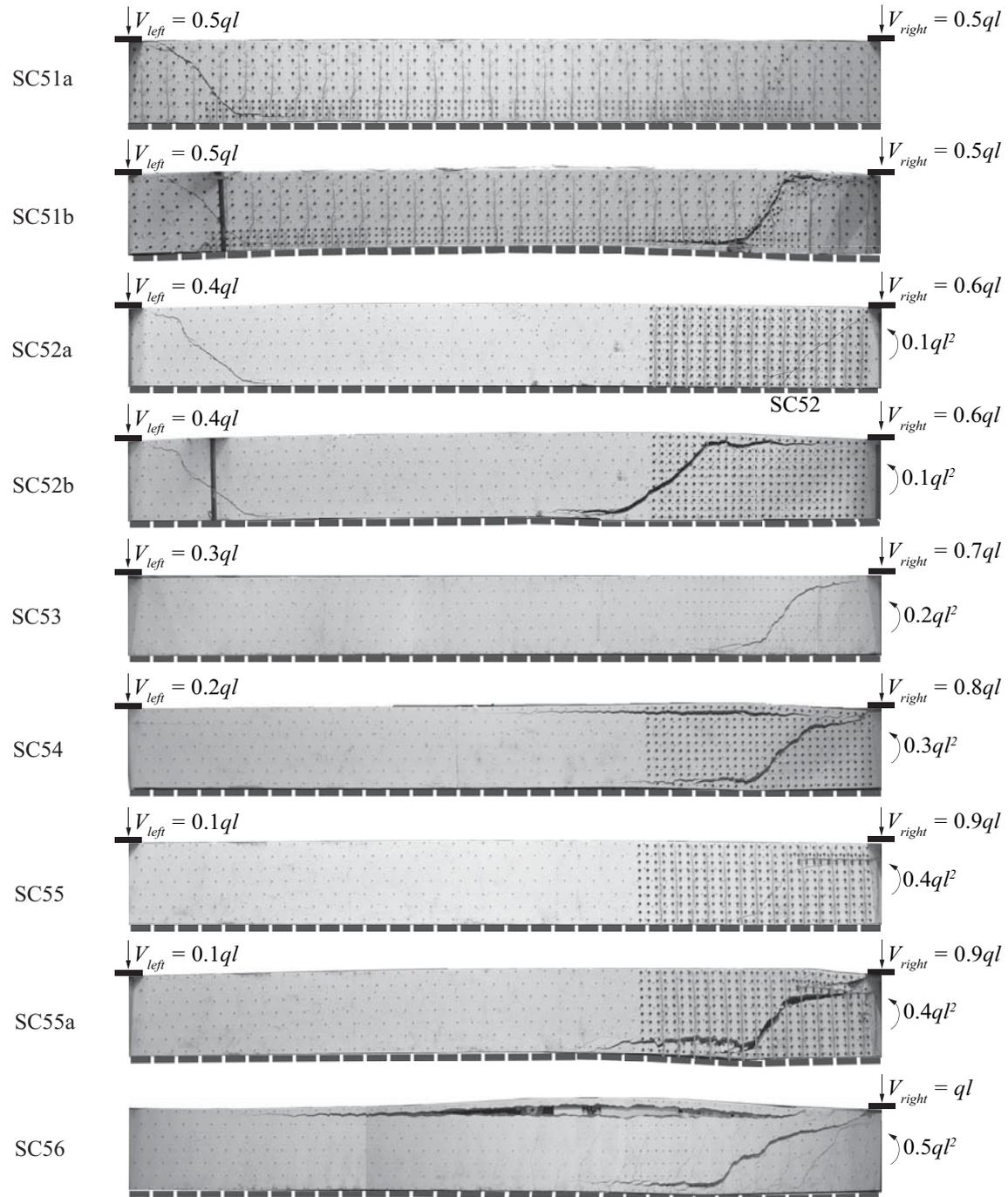


Figure A1.1 Photos of crack pattern after failure: members subjected to distributed loading.

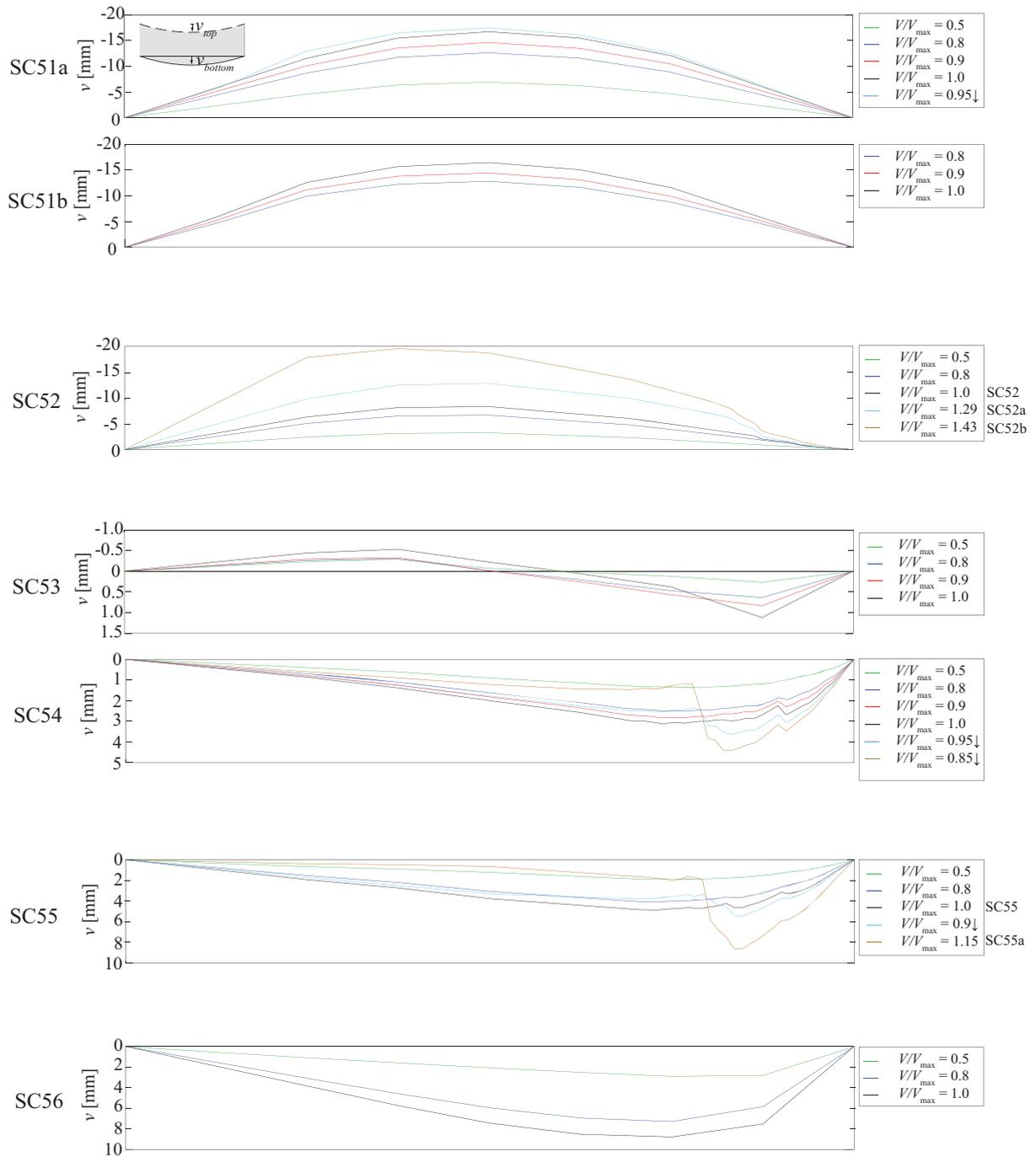


Figure A1.2 Members subjected to distributed loading: vertical displacement profile of bottom fibre at selected load steps (continuous lines).

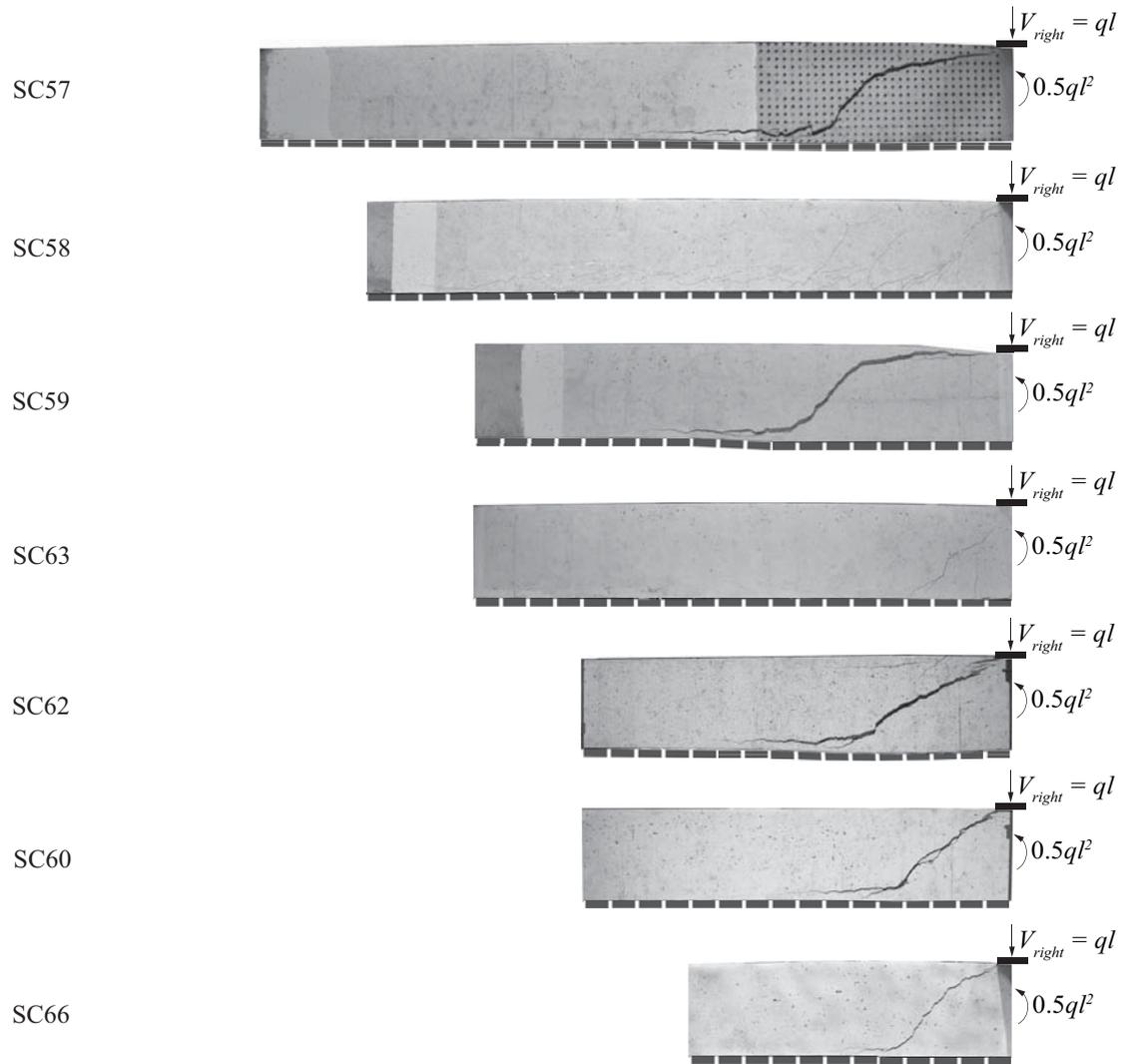


Figure A1.3 Photos of crack pattern after failure: cantilevers subjected to distributed loading

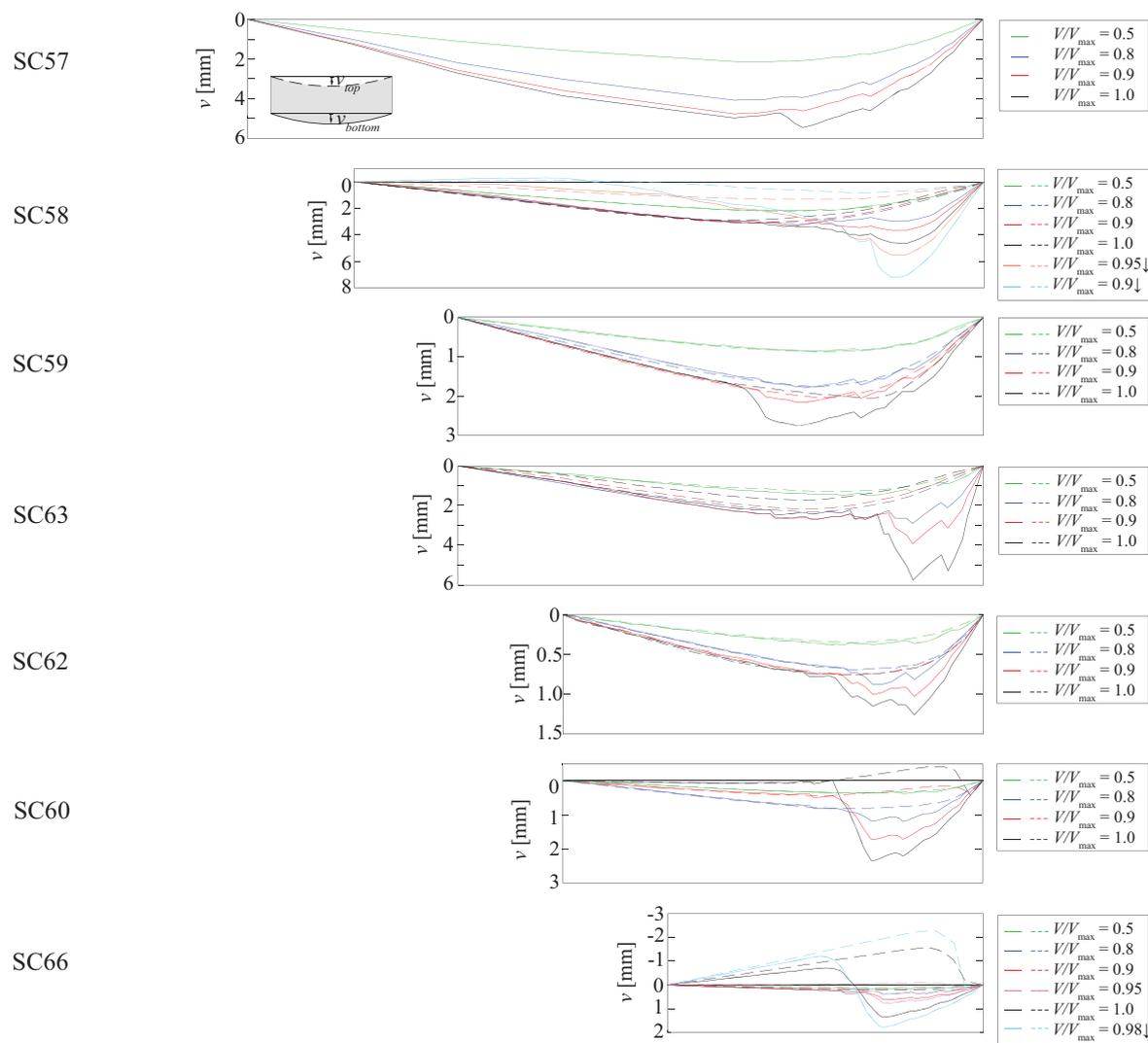


Figure A1.4 Cantilevers subjected to distributed loading: vertical displacement profile of top fibre (dashed lines) and vertical displacement profile of bottom fibre (continuous lines) at selected load steps.

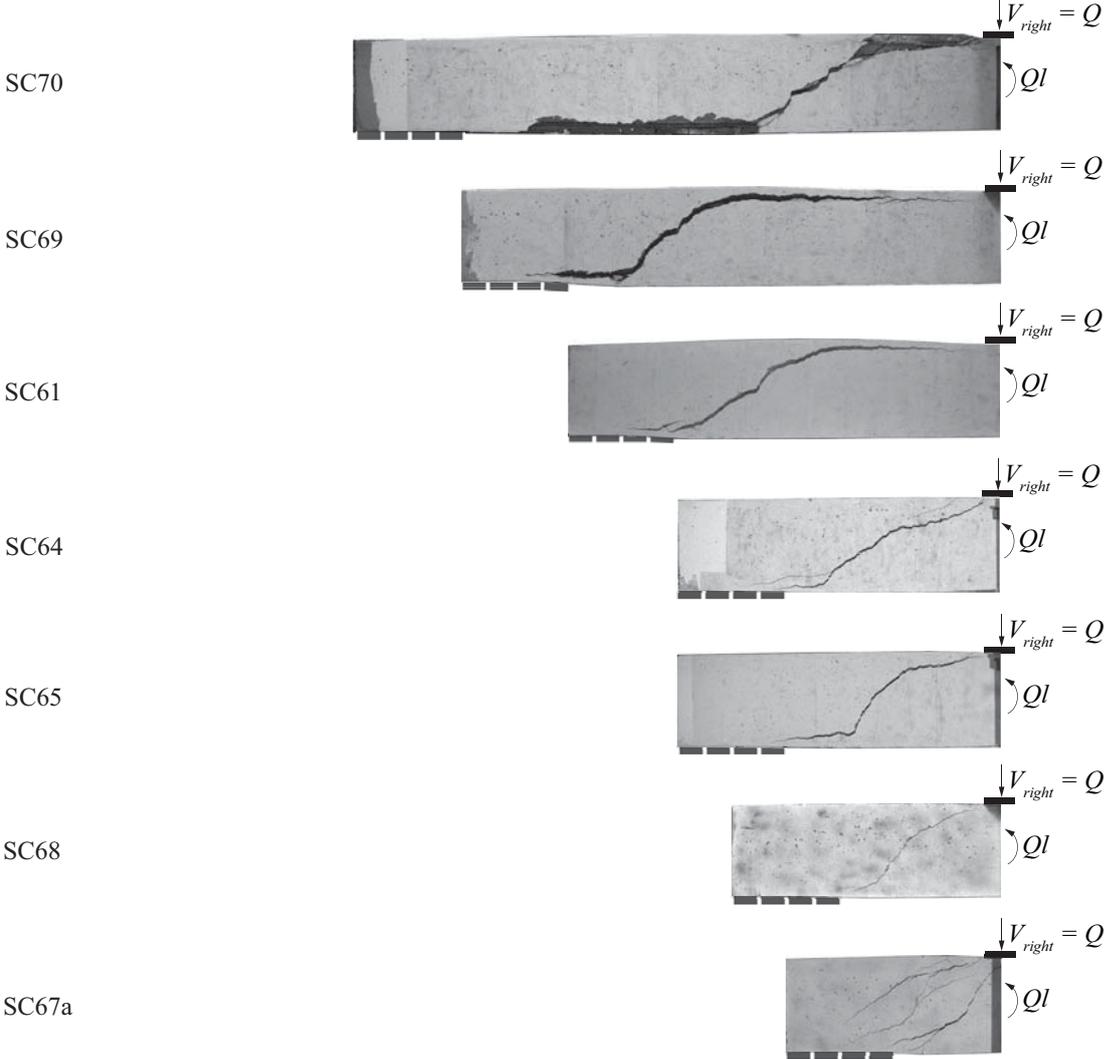


Figure A1.5 Photos of crack pattern after failure: cantilevers subjected to point loading.

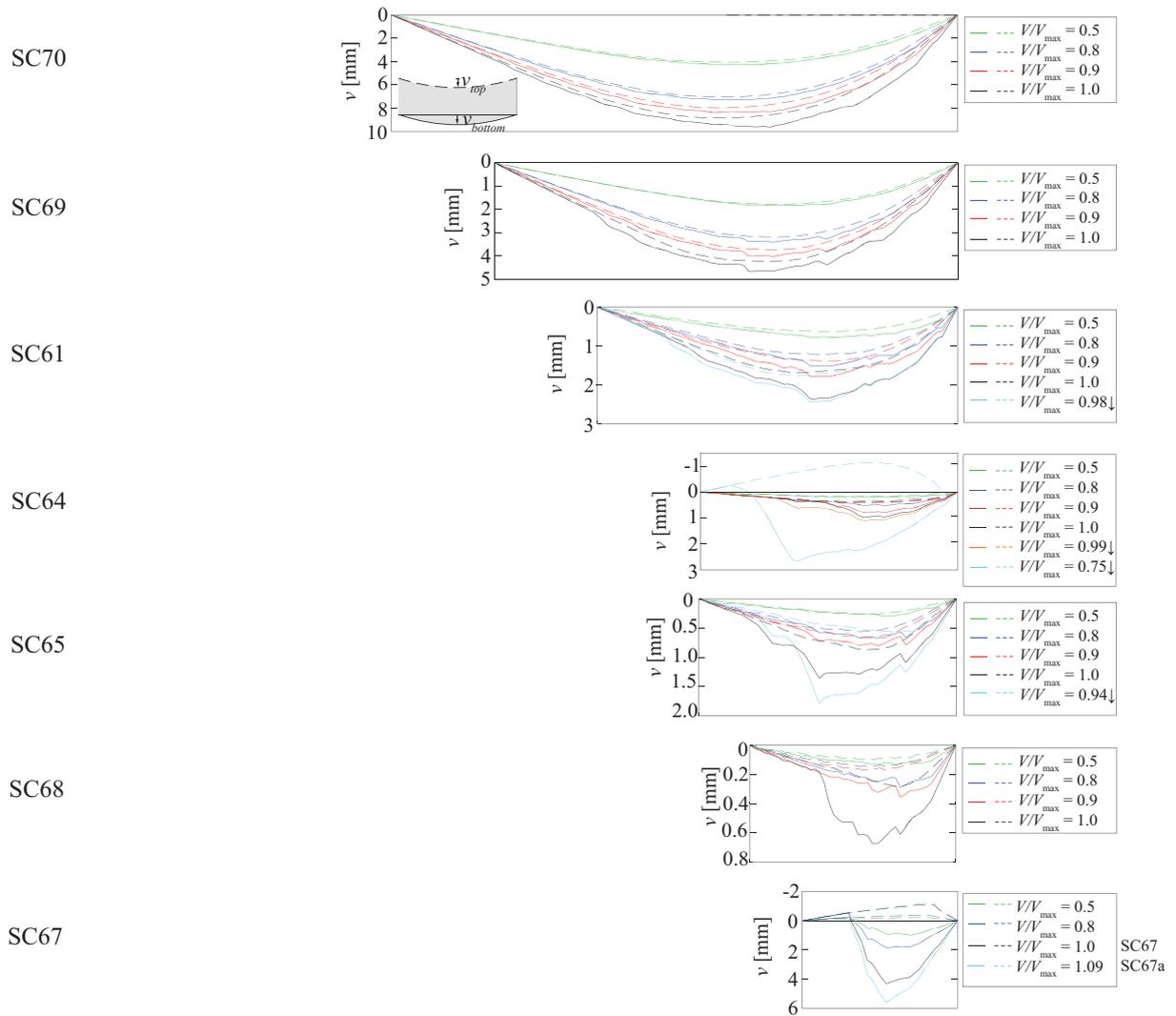


Figure A1.6 Specimens subjected to point loading: vertical displacement profile of top fibre (dashed lines) and vertical displacement profile of bottom fibre (continuous lines) at selected load steps.

