The force is measured by means of a piezoelectric sensor that is installed between the hydraulic cylinder and the assembly plate where the carriage is fastened. To correctly measure the deformation, an incremental optical ruler was used together with four jumpered strainmeters with a 0.1μ resolution. To have a reliable deformation – force curve, eight measurement cycles are performed for each type of carriage, and then the average values will be calculated.

Measurement results

The measurement of the stiffness in compression and traction conditions according to the above-mentioned modes allowed establishing the deformation – force curves for all types of carriage. The diagram below shows the curve for MG 35 LC P3.
2.13 Stiffness diagram

Stiffness MG25 LC

Stiffness MG25 LL
Stiffness MG25 SC

Stiffness MG25 SL
Stiffness MG35 LC

Stiffness MG35 LL
Stiffness MG35 SC

![Graph for Stiffness MG35 SC](image)

Stiffness MG35 SL

![Graph for Stiffness MG35 SL](image)
Stiffness MG45 LC

Stiffness MG45 LL
Stiffness MG45 SC

Stiffness MG45 SL
Stiffness MG55 LC

![Stiffness MG55 LC Diagram]

Stiffness MG55 LL

![Stiffness MG55 LL Diagram]
Stiffness MG55 SC

Stiffness MG55 SL