The cross section of the diffractive process  $e^+p \to e^+Xp$  is measured at a centre-of-mass energies of 319 GeV, where the system X contains at least two jets and the leading final state proton p is detected in the H1 Very Forward Proton Spectrometer. The measurement is performed in photoproduction defined by photon virtualities  $Q^2 < 2\,\mathrm{GeV^2}$  and in deep-inelastic scattering with  $4\,\mathrm{GeV^2} < Q^2 < 80\,\mathrm{GeV^2}$ . The results are compared to next-to-leading order QCD calculations based on diffractive parton distribution functions as extracted from measurements of inclusive cross sections in diffractive deep-inelastic scattering. A collinear QCD factorization theorem is tested against the measured cross sections and their ratios.