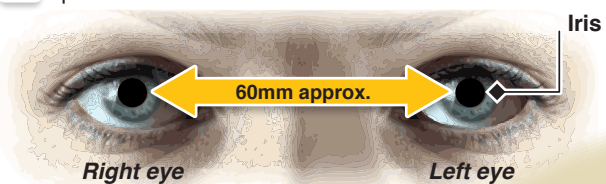


Secrets behind The Hobbit's startling visuals

Peter Jackson's eagerly awaited new movie trilogy, *The Hobbit*, has been filmed in ultra-high-definition, at twice the normal frame rate and in 3-D

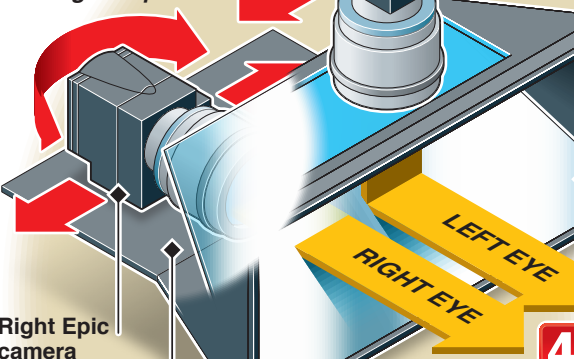
1 INTEROCULAR COMPATIBILITY
Stereoscopic cameras should be placed same distance apart as that of our irises for 3D effect to work best



3 3-D CAMERA RIG
Problem: Addition of bulky lenses prevents cameras from getting close enough to mimic eyes

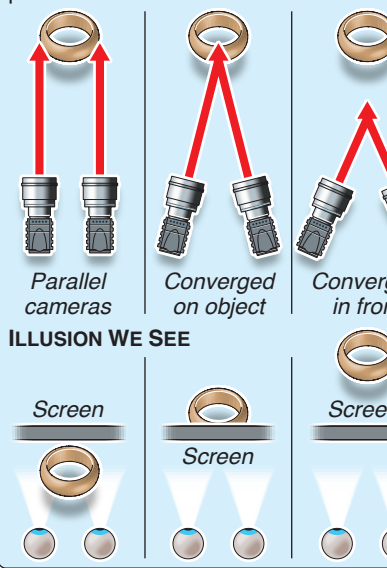
Solution: One-way mirrored glass lets one camera film through it and other to reflect off it – allowing distance to close to 60mm

Cameras can slide and tilt independently to alter **convergence point**

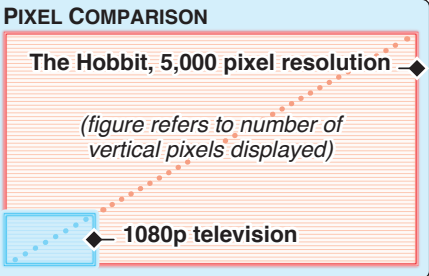
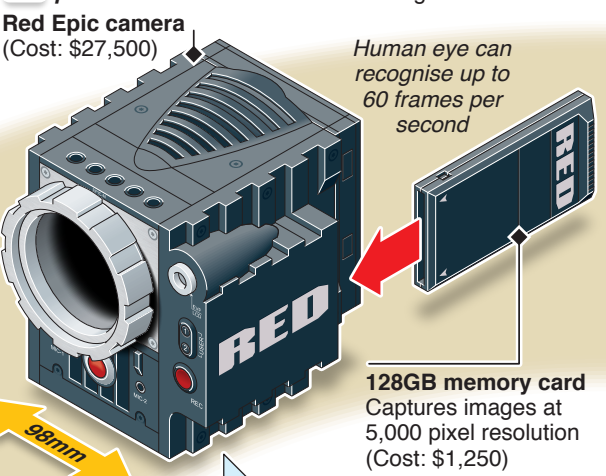


One-way glass: Transparent side

MANIPULATING DEPTH PERCEPTION
Stereographer controls convergence point on set as Jackson directs scene



2 NEXT GENERATION CAMERA
Jackson uses **Red Epic cameras**, shooting **48 frames per second** – twice frame rate of regular movies



4 CONVERGENCE POINT
Position of object in relation to cinema screen

Can be used as handheld camera

Some viewers complain of headaches when eyes are focused on screen but converging on changing planes

