

VOLUME GRAPHICS RECONSTRUCTION GEOMETRY AND COORDINATE SYSTEM CONVENTIONS

The axes referred to in this documentation are as follows: the Z-axis is the „vertical“ axis, i.e. the upwards direction of the (optimum) rotation axis. The X-axis is perpendicular to the detector plane, going from x-ray source to detector. The Y-axis is, therefore, the „horizontal“ detector axis.

Fig. 1:

Geometric setup (top view)

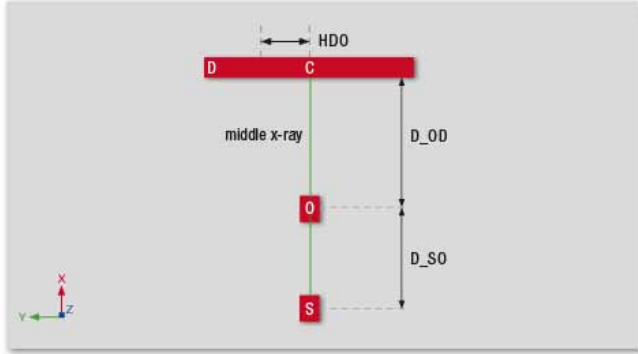


Fig. 2:

Geometric setup with reconstruction volume cube at zero angle

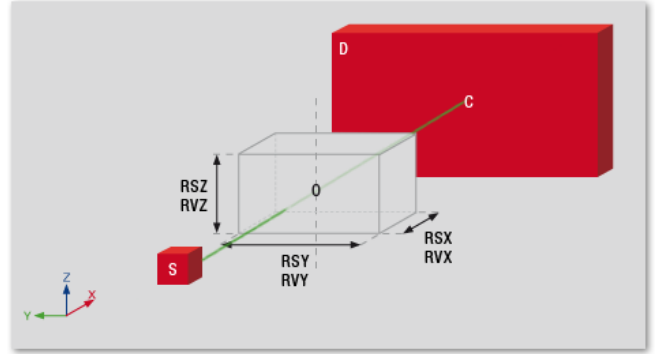


Fig. 3:

Geometric setup, detector (frontal)

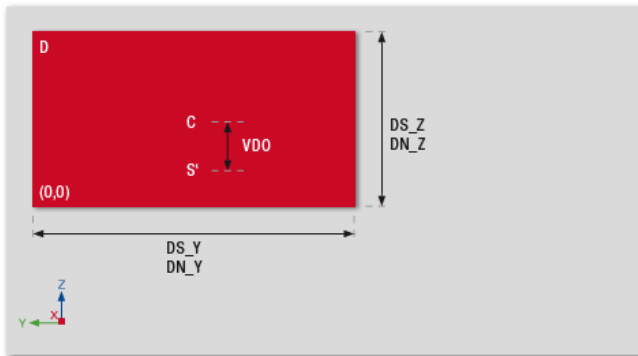
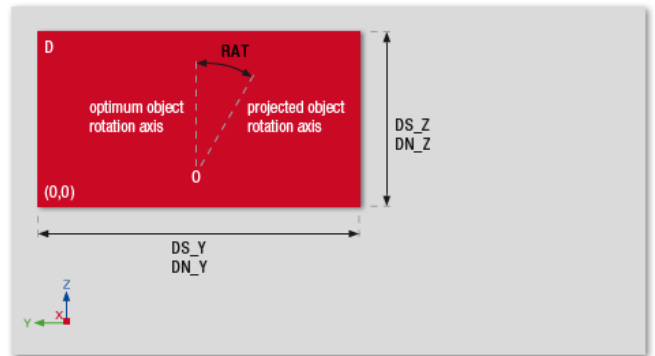


Fig. 4:

Geometric setup, detector (frontal)



Legend:

S : x-ray source
 S' : position of S projected onto detector plane
 O : object rotation axis (optimum axis)
 D : detector plane
 C : detector plane center
 HDO : horizontal detector offset
 VDO : vertical detector offset
 D_SO : distance source – object
 D_OD : distance object – detector
 DN_Y : detector pixel count Y
 DN_Z : detector pixel count Z
 DS_Y : detector size Y

DS_Z : detector size Z
 RVX : complete reconstruction voxel count X
 RVY : complete reconstruction voxel count Y
 RVZ : complete reconstruction voxel count Z
 RSX : complete reconstruction volume size X
 (calculated automatically)
 RSY : complete reconstruction volume size Y
 (calculated automatically)
 RSZ : complete reconstruction volume size Z
 (calculated automatically)
 RAT : rotation axis tilt correction
 (calculated automatically)