

| | Object | Center | Axis | Parameters | Clip plane | Density |
|------------------|----------------|----------------|--|------------------------|------------|---------|
| Thorax | Cylinder | [0, 0, 0] | [0, 0, 1] | L=50 ax=20 ay=10 | | 1.000 |
| Arm L | Cylinder | [-20, 0, 17.5] | [0, 0, 1] | L=15 R=5 | | 1.000 |
| Arm R | Cylinder | [20, 0, 17.5] | [0, 0, 1] | L=15 R=5 | | 1.000 |
| Lunge L | Ellipsoid | [-10.5, 0, 0] | | ax=7.5 ay=5.5 az=15 | | 0.260 |
| Lunge R | Ellipsoid | [10.5, 0, 0] | | ax=7.5 ay=5.5 az=15 | | 0.260 |
| Heart | Sphere | [0, 4, 0] | | R=3.5 | | 1.050 |
| Sternum | Box | [0, 9, 2.5] | | Lx=2.5 Ly=0.8 Lz=25 | | 1.250 |
| | Box | [0, 9, 2.5] | | Lx=2 Ly=0.5 Lz=25 | | 0.980 |
| Clavicle L | Cylinder | [-10, 5.5, 16] | [20, 9, -2] | L=17 R=0.5 | | 1.460 |
| | Cylinder | [-10, 5.5, 16] | [20, 9, -2] | L=16.5 R=0.4 | | 0.980 |
| Clavicle R | Cylinder | [10, 5.5, 16] | [20, -9, 2] | L=17 R=0.5 | | 1.460 |
| | Cylinder | [10, 5.5, 16] | [20, -9, 2] | L=16.5 R=0.4 | | 0.980 |
| Shoulder blade L | Ellipsoid_free | [-12, -5, 15] | Ax[2, -1, 0] | ax=4.5 ay=0.5 az=6 | Z<15 | 1.460 |
| | Ellipsoid_free | [-12, -5, 15] | Ay[1, 2, 0] Ax[2, -1, 0] Ay[1, 2, 0] | ax=4 ay=0.4 az=5.5 | | 0.980 |
| Shoulder blade R | Ellipsoid_free | [12, -5, 15] | Ax[2, 1, 0] | ax=4.5 ay=0.5 az=6 | Z<15 | 1.460 |
| | Ellipsoid_free | [12, -5, - | Ay[-1, 2, 0] | ax=4 ay=0.4 | | 0.980 |

| | | | | | | |
|--------------|----------|---------------------|--------------------------------------|----------|---|-------|
| | | 15] | Ax[2,-1, 0] Ay[1, 2, 0] | az=5.5 | | |
| Humerus L | Sphere | [-22, 0, 15] | | R=2.5 | | 1.460 |
| | Sphere | | | R=2.5 | | 1.460 |
| | Sphere | [-16.5, 0, 15] | | R=2 | | 0.980 |
| | Sphere | [-22, 0, 15] | | R=2 | | 0.980 |
| | | [-16.5, 0, 15] | | | | |
| Humerus R | Sphere | [22, 0, 15] | | R=2.5 | | 1.460 |
| | Sphere | | | R=2.5 | | 1.460 |
| | Sphere | [16.5, 0, 15] | | R=2 | | 0.980 |
| | Sphere | [22, 0, 15] | | R=2 | | 0.980 |
| | | [16.5, 0, 15] | | | | |
| Aorta | Cylinder | [-2.5, - 2.5, 0] | [0, 0, 1] | L=30 R=1 | R(3,7,7.615)<2.982 | 1.050 |
| | Cylinder | [-1, 1, 7.5] | [3, 7, 0] | L=20 R=1 | R(3,7,7.615)>2.982 | 1.050 |
| | Cylinder | [-0.5, 4.5, 6] | [0, 0, 1] | L=6 R=1 | R(1, 2, -2.236)<- 2.239 R(1, 2, -2.236) >- 2.239 | 1.050 |

Table 1: Definition of the different parts of the phantom

| Object | Center | Axis | Param | Clip plane | density |
|----------|------------|--------------|------------|------------|---------|
| Cylinder | [X, Y, Z] | [0, 0, 1] | L=2 R=1.75 | | 1.920 |
| Box | [X, Y-1.4, | | Lx=2.343 | | 1.920 |

| | | | | | |
|----------|-------------------|-----------|--------------------|---|-------|
| | Z] | | Ly=0.2 Lz=2 | | |
| Cylinder | [X, Y, Z] | [0, 0, 1] | L=2 R=1.5 | | 1.180 |
| Box | [X-2, Y-1.975, Z] | | Lx=4 Ly=0.95 Lz=2 | R(-0.95, 2.828, 0) < -1.04893-0.318392 +0.947959 Y R(-2, 32, 0) > -2.19572-0.0623783 X+0.998053 Y | 1.920 |
| Box | [X+2, Y-1.975, Z] | | Lx=4 Ly=0.95 Lz=2 | R(-0.95, 2.828, 0) < -1.04893 +0.318392 +0.947959 Y R(2, 32, 0)> -2.19572 +0.0623783 X +0.998053 Y | 1.920 |
| Box | [X, 2.35+Y, Z] | | Lx=1.6 Ly=0.3 Lz=2 | R(-2,4,0)> -2.37023 -0.447214 X +0.894427 Y R(-2,-4,0)< 2.37023 -0.447214 X -0.894427 Y | 1.920 |
| Box | [X, -3.25+Y, Z] | | Lx=0.8 Ly=1.6 Lz=2 | | 1.920 |
| Cylinder | [X, Y-4.05, Z] | [0, 0, 1] | L=17 R=0.5 | Y < Y-4.05 | 1.920 |

Table 2: Definition of a vertebra at the position (X, Y, Z)

The phantom consists of 9 vertebrae placed at X=0, Y=-5 and Z between -6 and 15.

The ribs lie on the ellipse of parameters a=-18.5, b=9, c=-5.5 .

All the cylinders composing a rib have a radius of 0.5. The inner cylinders for the marrowbone have a radius of 0.4.

| Center | Axis | Clip plane | density |
|---|------------------------------------|--|---------------|
| x=5.716814 y=8.559509 z=-5.230811 | 17.594546 -2.781153 1.699593 | r(1.907146,-0.481971,0.294538) <5.451355 r(1.983271,-0.155425,0.094982) >1.953178 | 1.410 / 0.980 |
| x=10.874027 y=7.281153 | 14.966814 -5.290067 | r(1.710571,-0.853311,0.521468) <7.622861 r(1.907146,-0.481971,0.294538) | 1.410 / 0.980 |

| | | | |
|-------------|------------|---|---------------|
| z=-4.449593 | 3.232819 | >5.451355 | |
| x=14.966814 | 10.874027 | r(1.281833,-1.268109,0.774956) <7.228981 | 1.410 / 0.980 |
| y=5.290067 | -7.281153 | | |
| z=-3.232819 | 4.449593 | r(1.710571,-0.853311,0.521468) >7.622861 | |
| x=17.594546 | 5.716814 | r(0.495137,-1.594626,0.974494) <3.123195 | 1.410 / 0.980 |
| y=2.781153 | -8.559509 | | |
| z=-1.699593 | 5.230811 | r(1.281833,-1.268109,0.774956) >7.228981 | |
| x=18.500000 | -0.000000 | r(-0.495137,-1.594626,0.974494) <- 3.123195 | 1.410 / 0.980 |
| y=-0.000000 | -9.000000 | | |
| z=0.000000 | 5.500000 | r(0.495137,-1.594626,0.974494) >3.123195 | |
| x=17.594546 | -5.716814 | r(-1.281833,-1.268109,0.774956) <- 7.228981 | 1.410 / 0.980 |
| y=-2.781153 | -8.559509 | | |
| z=1.699593 | 5.230811 | r(-0.495137,-1.594626,0.974494) >- 3.123195 | |
| x=14.966814 | -10.874027 | r(-1.710571,-0.853311,0.521468) <- 7.622861 | 1.410 / 0.980 |
| y=-5.290067 | -7.281153 | | |
| z=3.232819 | 4.449593 | r(-1.281833,-1.268109,0.774956) >- 7.228981 | |
| x=10.874027 | -14.966814 | r(-1.907146,-0.481971,0.294538) <- 5.45135 | 1.410 / 0.980 |
| y=-7.281153 | -5.290067 | | |
| z=4.449593 | 3.232819 | r(-1.710571,-0.853311,0.521468) >- 7.622861 | |
| x=5.716814 | -17.594546 | r(-1.983271,-0.155425,0.094982) <- 1.953178 | 1.410 / 0.980 |
| y=-8.559509 | -2.781153 | | |
| z=5.230811 | 1.699593 | r(-1.907146,-0.481971,0.294538) >- 5.451355 | |

Table 2: Definition of the 9 cylinders composing the rib at the position $Z=0$. The four other ribs are just translated to $Z=\pm 3$ and $Z=\pm 6$.