

COGIMON URDF-DATA

# waist

VOLUME = 1.0924781e+06 MM<sup>3</sup>  
SURFACE AREA = 7.2290644e+05 MM<sup>2</sup>  
AVERAGE DENSITY = 3.1670623e-06 KILOGRAM / MM<sup>3</sup>  
MASS = 3.4599462e+00 KILOGRAM

CENTER OF GRAVITY with respect to WAIST\_F\_ROLL coordinate frame:  
X Y Z -5.6796324e+01 4.5196345e-01 -3.8136153e+01 MM

INERTIA with respect to WAIST\_F\_ROLL coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz 4.3163054e+04 1.8426740e+02 -7.5767018e+03  
Iyx Iyy Iyz 1.8426740e+02 2.5169260e+04 6.8799877e+01  
Izx Izy Izz -7.5767018e+03 6.8799877e+01 5.0812723e+04

INERTIA at CENTER OF GRAVITY with respect to WAIST\_F\_ROLL coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz 3.8130318e+04 9.5451056e+01 -8.2481481e+01  
Iyx Iyy Iyz 9.5451056e+01 8.9760596e+03 9.1637353e+00  
Izx Izy Izz -8.2481481e+01 9.1637353e+00 3.9650845e+04

PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM \* MM<sup>2</sup>)

I1 I2 I3 8.9757442e+03 3.8126172e+04 3.9655306e+04

ROTATION MATRIX from WAIST\_F\_ROLL orientation to PRINCIPAL AXES:

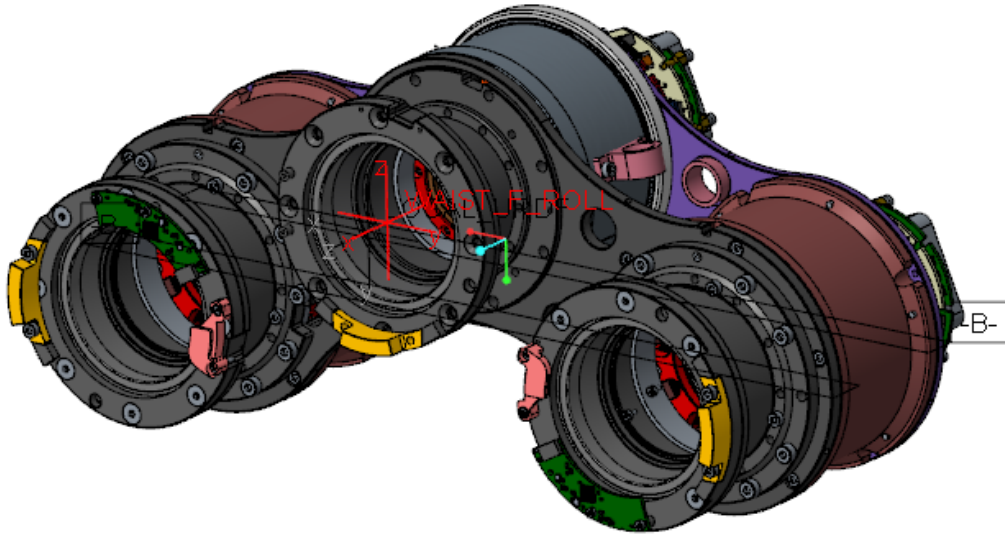
|          |          |          |
|----------|----------|----------|
| -0.00327 | -0.99854 | -0.05400 |
| 0.99999  | -0.00329 | 0.00013  |
| -0.00031 | -0.05400 | 0.99854  |

ROTATION ANGLES from WAIST\_F\_ROLL orientation to PRINCIPAL AXES (degrees):

angles about x y z 0.000 -3.095 90.188

RADII OF GYRATION with respect to PRINCIPAL AXES:

R1 R2 R3 5.0933153e+01 1.0497284e+02 1.0705722e+02 MM



# WAIST LINK ROLL



VOLUME =  $1.7539954 \times 10^5$  MM<sup>3</sup>  
SURFACE AREA =  $1.7111720 \times 10^5$  MM<sup>2</sup>  
AVERAGE DENSITY =  $4.2293547 \times 10^{-6}$  KILOGRAM / MM<sup>3</sup>  
MASS =  $7.4182685 \times 10^{-1}$  KILOGRAM

CENTER OF GRAVITY with respect to WAIST\_LINK\_ROLL coordinate frame:  
X Y Z  $-3.9412845 \times 10^1$   $3.1221526 \times 10^{-1}$   $5.6331027 \times 10^0$  MM

INERTIA with respect to WAIST\_LINK\_ROLL coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:  
Ixx Ixy Ixz  $9.6798257 \times 10^2$   $1.3979573 \times 10^1$   $2.7227427 \times 10^2$   
Iyx Iyy Iyz  $1.3979573 \times 10^1$   $2.7746836 \times 10^3$   $-1.2352221 \times 10^1$   
Izx Izy Izz  $2.7227427 \times 10^2$   $-1.2352221 \times 10^1$   $2.6567053 \times 10^3$

INERTIA at CENTER OF GRAVITY with respect to WAIST\_LINK\_ROLL coordinate frame:  
(KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:  
Ixx Ixy Ixz  $9.4437073 \times 10^2$   $4.8511769 \times 10^0$   $1.0757639 \times 10^2$   
Iyx Iyy Iyz  $4.8511769 \times 10^0$   $1.5988107 \times 10^3$   $-1.1047540 \times 10^1$   
Izx Izy Izz  $1.0757639 \times 10^2$   $-1.1047540 \times 10^1$   $1.5042997 \times 10^3$

PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM \* MM<sup>2</sup>)  
I1 I2 I3  $9.2434563 \times 10^2$   $1.5229457 \times 10^3$   $1.6001898 \times 10^3$

ROTATION MATRIX from WAIST\_LINK\_ROLL orientation to PRINCIPAL AXES:

|          |         |          |
|----------|---------|----------|
| 0.98314  | 0.18230 | 0.01397  |
| -0.01006 | 0.13026 | -0.99143 |
| -0.18256 | 0.97458 | 0.12990  |

ROTATION ANGLES from WAIST\_LINK\_ROLL orientation to PRINCIPAL AXES (degrees):  
angles about x y z 82.535 0.801 -10.505

RADII OF GYRATION with respect to PRINCIPAL AXES:  
R1 R2 R3  $3.5299286 \times 10^1$   $4.5309674 \times 10^1$   $4.6444520 \times 10^1$  MM

# Pennacchio



VOLUME = 4.0300873e+05 MM<sup>3</sup>  
SURFACE AREA = 1.0312402e+05 MM<sup>2</sup>  
AVERAGE DENSITY = 5.3724934e-06 KILOGRAM / MM<sup>3</sup>  
MASS = 2.1651618e+00 KILOGRAM

CENTER OF GRAVITY with respect to ASM\_DEF\_CSYS coordinate frame:  
X Y Z -3.4081174e-03 5.8527877e-04 1.7247336e+02 MM

INERTIA with respect to ASM\_DEF\_CSYS coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:  
Ixx Ixy Ixz 1.1012073e+05 1.9752304e-02 1.8706435e+00  
Iyx Iyy Iyz 1.9752304e-02 1.1011995e+05 -4.8578901e-01  
Izx Izy Izz 1.8706435e+00 -4.8578901e-01 6.0311794e+02

INERTIA at CENTER OF GRAVITY with respect to PENNACCHIO\_URDF coordinate frame:  
(KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:  
Ixx Ixy Ixz 4.5713534e+04 1.9747985e-02 5.9794097e-01  
Iyx Iyy Iyz 1.9747985e-02 4.5712755e+04 -2.6722676e-01  
Izx Izy Izz 5.9794097e-01 -2.6722676e-01 6.0311791e+02

PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM \* MM<sup>2</sup>)  
I1 I2 I3 6.0311791e+02 4.5712755e+04 4.5713534e+04

ROTATION MATRIX from ASM\_DEF\_CSYS orientation to PRINCIPAL AXES:

|         |         |         |
|---------|---------|---------|
| 0.00000 | 1.00000 | 0.00000 |
| 0.00000 | 0.00000 | 1.00000 |
| 1.00000 | 0.00000 | 0.00000 |

ROTATION ANGLES from ASM\_DEF\_CSYS orientation to PRINCIPAL AXES (degrees):  
angles about x y z -90.000 0.000 -90.000

RADII OF GYRATION with respect to PRINCIPAL AXES:  
R1 R2 R3 1.6689985e+01 1.4530265e+02 1.4530388e+02 MM

# Hip roll



VOLUME =  $6.2706035 \times 10^5$  MM<sup>3</sup>  
SURFACE AREA =  $4.5812857 \times 10^5$  MM<sup>2</sup>  
AVERAGE DENSITY =  $3.3388281 \times 10^{-6}$  KILOGRAM / MM<sup>3</sup>  
MASS =  $2.0936467 \times 10^0$  KILOGRAM

CENTER OF GRAVITY with respect to WAIST\_LF\_ROLL coordinate frame:  
X Y Z  $-4.1435899 \times 10^1$   $-2.4099021 \times 10^{-1}$   $-6.7437774 \times 10^1$  MM

INERTIA with respect to WAIST\_LF\_ROLL coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz  $2.0328644 \times 10^4$   $1.2836757 \times 10^1$   $-7.1832791 \times 10^3$   
Iyx Iyy Iyz  $1.2836757 \times 10^1$   $2.4404941 \times 10^4$   $2.2892687 \times 10^1$   
Izx Izy Izz  $-7.1832791 \times 10^3$   $2.2892687 \times 10^1$   $8.9864540 \times 10^3$

INERTIA at CENTER OF GRAVITY with respect to WAIST\_LF\_ROLL coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz  $1.0806924 \times 10^4$   $3.3743172 \times 10^1$   $-1.3329083 \times 10^3$   
Iyx Iyy Iyz  $3.3743172 \times 10^1$   $1.1288691 \times 10^4$   $5.6918305 \times 10^1$   
Izx Izy Izz  $-1.3329083 \times 10^3$   $5.6918305 \times 10^1$   $5.3916798 \times 10^3$

PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM \* MM<sup>2</sup>)

I1 I2 I3  $5.0807373 \times 10^3$   $1.1114941 \times 10^4$   $1.1291616 \times 10^4$

ROTATION MATRIX from WAIST\_LF\_ROLL orientation to PRINCIPAL AXES:

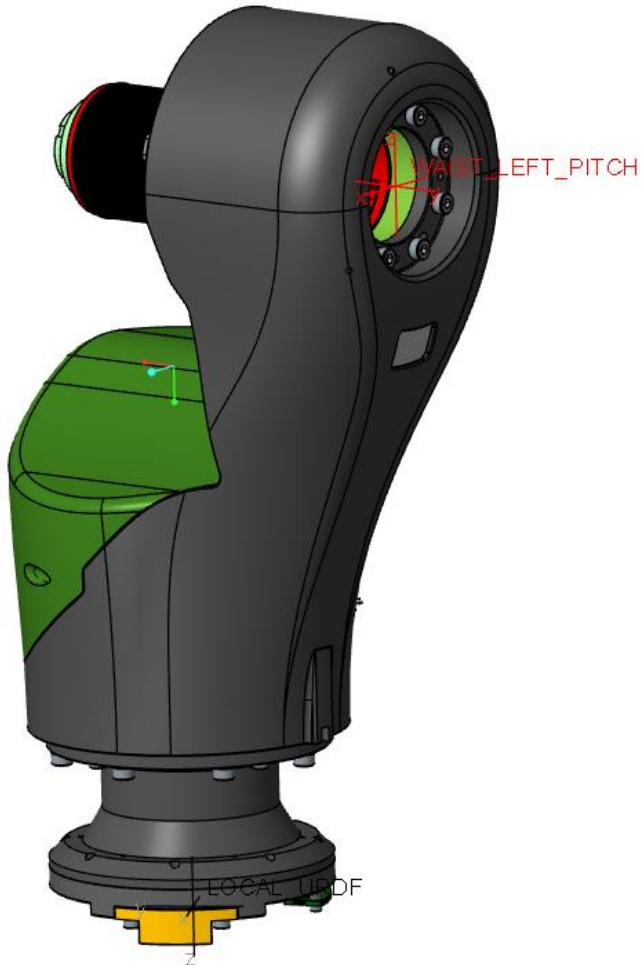
|          |          |          |
|----------|----------|----------|
| 0.22676  | 0.96737  | 0.11303  |
| -0.01016 | -0.11370 | 0.99346  |
| 0.97390  | -0.22642 | -0.01595 |

ROTATION ANGLES from WAIST\_LF\_ROLL orientation to PRINCIPAL AXES (degrees):  
angles about x y z  $-90.920$   $6.490$   $-76.808$

RADII OF GYRATION with respect to PRINCIPAL AXES:

R1 R2 R3  $4.9261958 \times 10^1$   $7.2862135 \times 10^1$   $7.3438931 \times 10^1$  MM

# Hip - Pitch



VOLUME = 4.8843228e+05 MM<sup>3</sup>  
SURFACE AREA = 4.0853707e+05 MM<sup>2</sup>  
AVERAGE DENSITY = 3.2994721e-06 KILOGRAM / MM<sup>3</sup>  
MASS = 1.6115687e+00 KILOGRAM

CENTER OF GRAVITY with respect to WAIST\_LEFT\_PITCH coordinate frame:  
X Y Z 5.8688639e-01 -6.2440385e+01 -8.5057072e+01 MM

INERTIA with respect to WAIST\_LEFT\_PITCH coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

lxx lxy lxz 3.4111563e+04 3.7170469e+01 1.4050574e+02  
lyx lyy lyz 3.7170469e+01 2.6097579e+04 -1.1276358e+04  
lzx lzy lzz 1.4050574e+02 -1.1276358e+04 1.0209192e+04

INERTIA at CENTER OF GRAVITY with respect to WAIST\_LEFT\_PITCH coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

lxx lxy lxz 1.6169151e+04 -2.1886129e+01 6.0058109e+01  
lyx lyy lyz -2.1886129e+01 1.4437800e+04 -2.7173225e+03  
lzx lzy lzz 6.0058109e+01 -2.7173225e+03 3.9254506e+03

PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM \* MM<sup>2</sup>)

I1 I2 I3 3.2643786e+03 1.5097479e+04 1.6170543e+04

ROTATION MATRIX from WAIST\_LEFT\_PITCH orientation to PRINCIPAL AXES:

|          |          |          |
|----------|----------|----------|
| -0.00412 | 0.03306  | -0.99944 |
| 0.23630  | 0.97118  | 0.03115  |
| 0.97167  | -0.23604 | -0.01182 |

ROTATION ANGLES from WAIST\_LEFT\_PITCH orientation to PRINCIPAL AXES (degrees):  
angles about x y z -110.770 -88.091 -97.106

RADII OF GYRATION with respect to PRINCIPAL AXES:

R1 R2 R3 4.5006563e+01 9.6789404e+01 1.0017005e+02 MM



# Hip Yaw

VOLUME = 5.8731346e+05 MM<sup>3</sup>  
SURFACE AREA = 4.3905301e+05 MM<sup>2</sup>  
AVERAGE DENSITY = 2.9719531e-06 KILOGRAM / MM<sup>3</sup>  
MASS = 1.7454681e+00 KILOGRAM

CENTER OF GRAVITY with respect to LEFT\_WAIST\_YAW coordinate frame:  
X Y Z -2.1136410e+01 -4.2862386e+00 -3.8232267e+01 MM

INERTIA with respect to LEFT\_WAIST\_YAW coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz 8.5691728e+03 -1.9828734e+02 -2.2121863e+03  
Iyx Iyy Iyz -1.9828734e+02 9.9794948e+03 -4.0039407e+02  
Izx Izy Izz -2.2121863e+03 -4.0039407e+02 5.2783547e+03

INERTIA at CENTER OF GRAVITY with respect to LEFT\_WAIST\_YAW coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz 5.9857438e+03 -4.0155441e+01 -8.0168603e+02  
Iyx Iyy Iyz -4.0155441e+01 6.6483492e+03 -1.1435964e+02  
Izx Izy Izz -8.0168603e+02 -1.1435964e+02 4.4665032e+03

PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM \* MM<sup>2</sup>)

I1 I2 I3 4.1159386e+03 6.3303225e+03 6.6543350e+03

ROTATION MATRIX from LEFT\_WAIST\_YAW orientation to PRINCIPAL AXES:

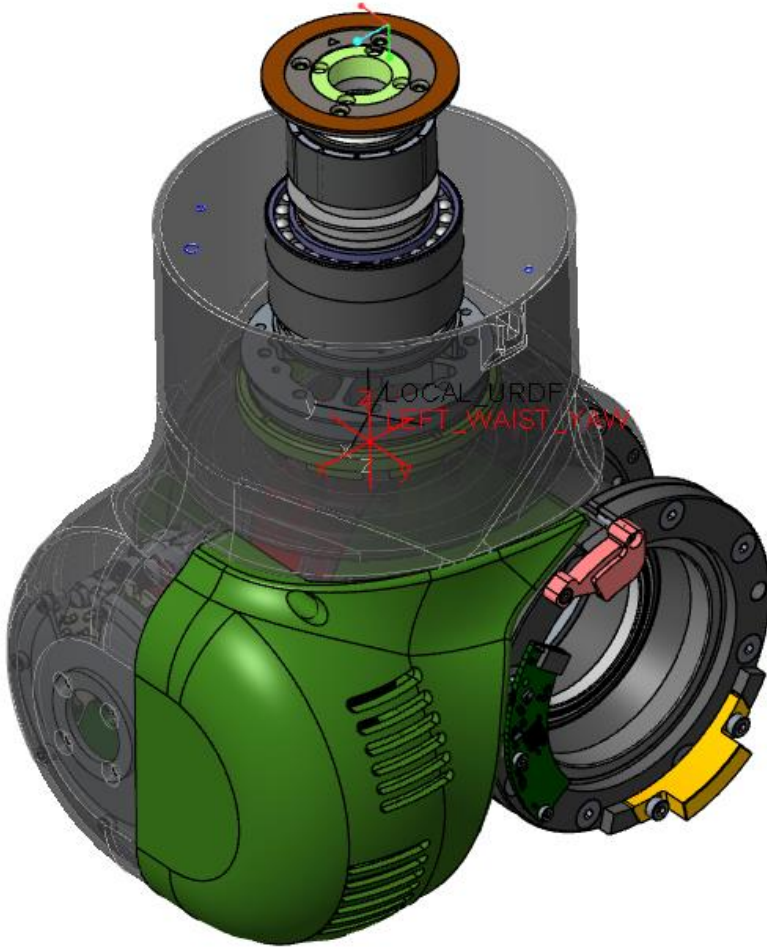
|         |          |          |
|---------|----------|----------|
| 0.39448 | 0.91889  | 0.00466  |
| 0.04770 | -0.02554 | 0.99854  |
| 0.91767 | -0.39368 | -0.05390 |

ROTATION ANGLES from LEFT\_WAIST\_YAW orientation to PRINCIPAL AXES (degrees):

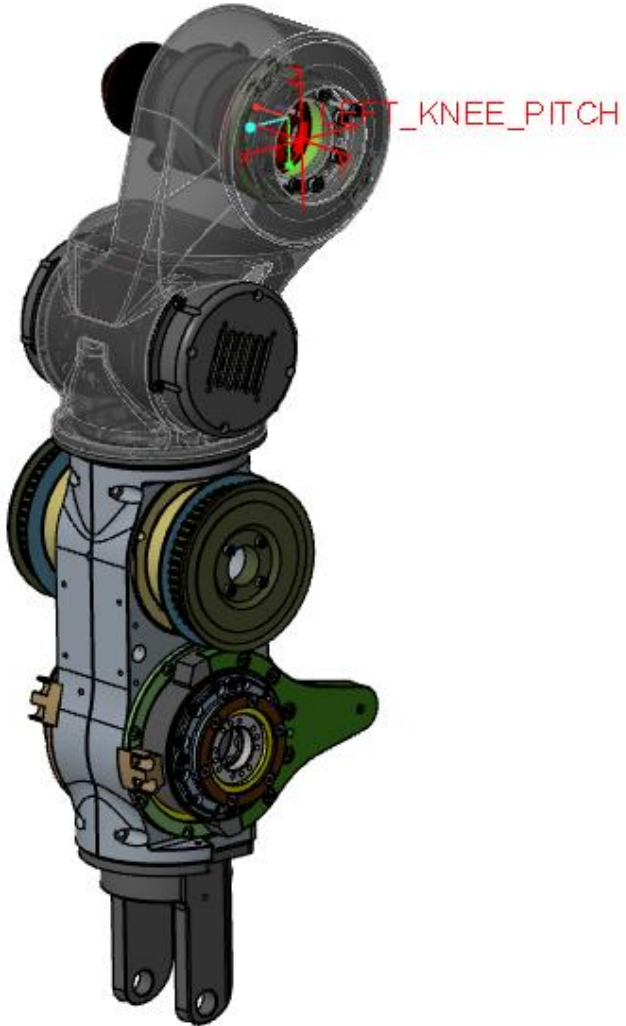
angles about x y z -93.090 0.267 -66.766

RADII OF GYRATION with respect to PRINCIPAL AXES:

R1 R2 R3 4.8559979e+01 6.0222248e+01 6.1744229e+01 MM



# Knee Pitch



VOLUME = 1.2595184e+06 MM<sup>3</sup>  
SURFACE AREA = 8.5214192e+05 MM<sup>2</sup>  
AVERAGE DENSITY = 2.9388146e-06 KILOGRAM / MM<sup>3</sup>  
MASS = 3.7014912e+00 KILOGRAM

CENTER OF GRAVITY with respect to LEFT\_KNEE\_PITCH coordinate frame:  
X Y Z 2.7363015e+01 -5.7802070e+01 -1.9306454e+02 MM

INERTIA with respect to LEFT\_KNEE\_PITCH coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

|     |     |     |               |                |                |
|-----|-----|-----|---------------|----------------|----------------|
| Ixx | Ixy | Ixz | 2.1500581e+05 | 6.2235688e+03  | 2.4925435e+04  |
| Iyx | Iyy | Iyz | 6.2235688e+03 | 2.0406399e+05  | -4.4038890e+04 |
| Izx | Izy | Izz | 2.4925435e+04 | -4.4038890e+04 | 2.3322675e+04  |

INERTIA at CENTER OF GRAVITY with respect to LEFT\_KNEE\_PITCH coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

|     |     |     |               |                |                |
|-----|-----|-----|---------------|----------------|----------------|
| Ixx | Ixy | Ixz | 6.4669769e+04 | 3.6914631e+02  | 5.3710941e+03  |
| Iyx | Iyy | Iyz | 3.6914631e+02 | 6.3323486e+04  | -2.7319883e+03 |
| Izx | Izy | Izz | 5.3710941e+03 | -2.7319883e+03 | 8.1842652e+03  |

PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM \* MM<sup>2</sup>)

|    |    |    |               |               |               |
|----|----|----|---------------|---------------|---------------|
| I1 | I2 | I3 | 7.5420492e+03 | 6.3452356e+04 | 6.5183114e+04 |
|----|----|----|---------------|---------------|---------------|

ROTATION MATRIX from LEFT\_KNEE\_PITCH orientation to PRINCIPAL AXES:

|          |          |          |
|----------|----------|----------|
| -0.09381 | -0.05939 | -0.99382 |
| 0.04932  | 0.99672  | -0.06422 |
| 0.99437  | -0.05504 | -0.09057 |

ROTATION ANGLES from LEFT\_KNEE\_PITCH orientation to PRINCIPAL AXES (degrees):

|                |   |   |         |         |         |
|----------------|---|---|---------|---------|---------|
| angles about x | y | z | 144.661 | -83.625 | 147.662 |
|----------------|---|---|---------|---------|---------|

RADII OF GYRATION with respect to PRINCIPAL AXES:

|    |    |    |               |               |               |    |
|----|----|----|---------------|---------------|---------------|----|
| R1 | R2 | R3 | 4.5139456e+01 | 1.3092890e+02 | 1.3270253e+02 | MM |
|----|----|----|---------------|---------------|---------------|----|



# Ankle pitch

VOLUME = 4.2947161e+04 MM<sup>3</sup>  
SURFACE AREA = 2.1304412e+04 MM<sup>2</sup>  
AVERAGE DENSITY = 4.1268900e-06 KILOGRAM / MM<sup>3</sup>  
MASS = 1.7723821e-01 KILOGRAM

CENTER OF GRAVITY with respect to ANKLE\_PITCH coordinate frame:  
X Y Z 1.1213007e+00 4.6152281e-01 -1.1449670e-03 MM

INERTIA with respect to ANKLE\_PITCH coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz 2.8179788e+01 0.0000000e+00 0.0000000e+00  
Iyx Iyy Iyz 0.0000000e+00 9.7601246e+01 4.6669685e-04  
Izx Izy Izz 0.0000000e+00 4.6669685e-04 1.1596643e+02

INERTIA at CENTER OF GRAVITY with respect to ANKLE\_PITCH coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz 2.8142035e+01 9.1715528e-02 -2.1701012e-04  
Iyx Iyy Iyz 9.1715528e-02 9.7378402e+01 3.7303915e-04  
Izx Izy Izz -2.1701012e-04 3.7303915e-04 1.1570584e+02

PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM \* MM<sup>2</sup>)

I1 I2 I3 2.8141914e+01 9.7378523e+01 1.1570584e+02

ROTATION MATRIX from ANKLE\_PITCH orientation to PRINCIPAL AXES:

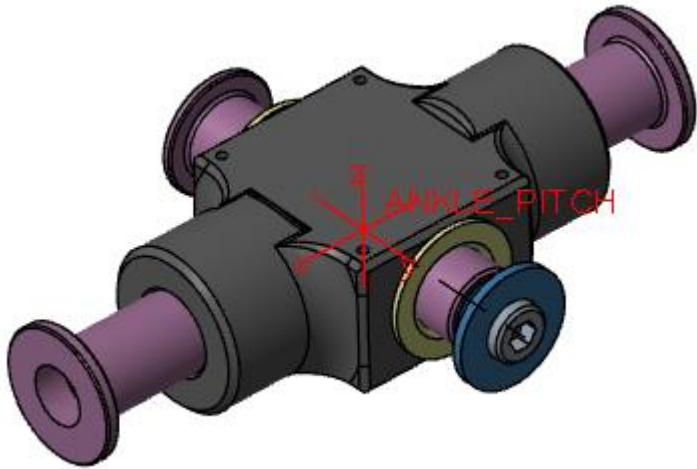
|          |          |         |
|----------|----------|---------|
| 1.00000  | 0.00132  | 0.00000 |
| -0.00132 | 1.00000  | 0.00002 |
| 0.00000  | -0.00002 | 1.00000 |

ROTATION ANGLES from ANKLE\_PITCH orientation to PRINCIPAL AXES (degrees):

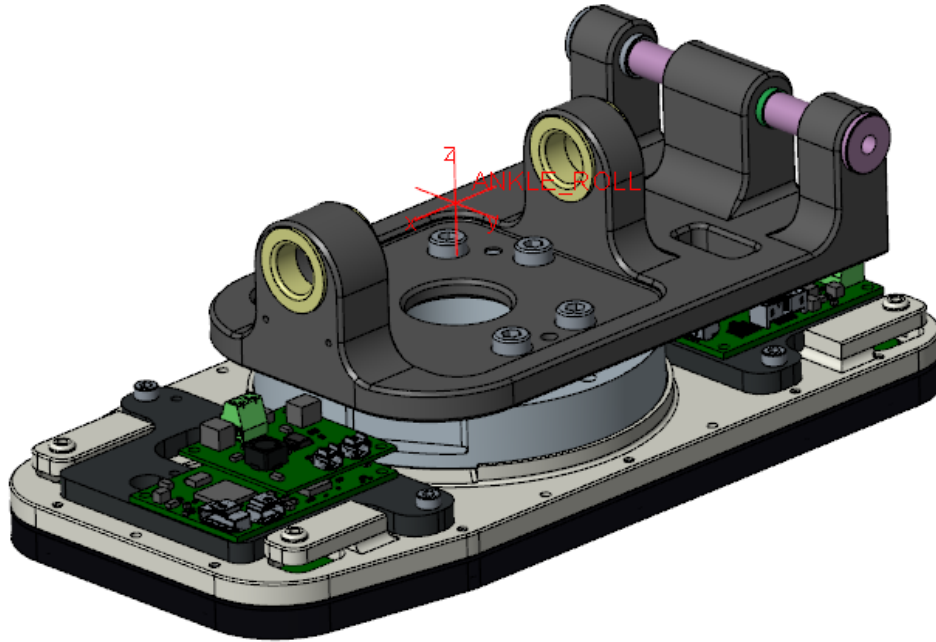
angles about x y z 0.000 0.000 -0.076

RADII OF GYRATION with respect to PRINCIPAL AXES:

R1 R2 R3 1.2600801e+01 2.3439747e+01 2.5550474e+01 MM



# Ankle Roll



VOLUME = 4.6845665e+05 MM<sup>3</sup>  
SURFACE AREA = 1.9526772e+05 MM<sup>2</sup>  
AVERAGE DENSITY = 3.8038939e-06 KILOGRAM / MM<sup>3</sup>  
MASS = 1.7819594e+00 KILOGRAM

CENTER OF GRAVITY with respect to ANKLE\_ROLL coordinate frame:  
X Y Z -8.6960323e+00 -6.6741928e-02 -4.1675435e+01 MM

INERTIA with respect to ANKLE\_ROLL coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz 5.0132587e+03 4.7584269e+00 -3.1743614e+02  
Iyx Iyy Iyz 4.7584269e+00 8.5816087e+03 -8.0083189e+00  
Izx Izy Izz -3.1743614e+02 -8.0083189e+00 6.5411533e+03

INERTIA at CENTER OF GRAVITY with respect to ANKLE\_ROLL coordinate frame: (KILOGRAM \* MM<sup>2</sup>)

INERTIA TENSOR:

Ixx Ixy Ixz 1.9182691e+03 5.7926583e+00 3.2836542e+02  
Iyx Iyy Iyz 5.7926583e+00 5.3518735e+03 -3.0518008e+00  
Izx Izy Izz 3.2836542e+02 -3.0518008e+00 6.4063918e+03

PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM \* MM<sup>2</sup>)

I1 I2 I3 1.8943616e+03 5.3518775e+03 6.4302952e+03

ROTATION MATRIX from ANKLE\_ROLL orientation to PRINCIPAL AXES:

|          |         |          |
|----------|---------|----------|
| 0.99736  | 0.00191 | 0.07258  |
| -0.00174 | 1.00000 | -0.00243 |
| -0.07258 | 0.00230 | 0.99736  |

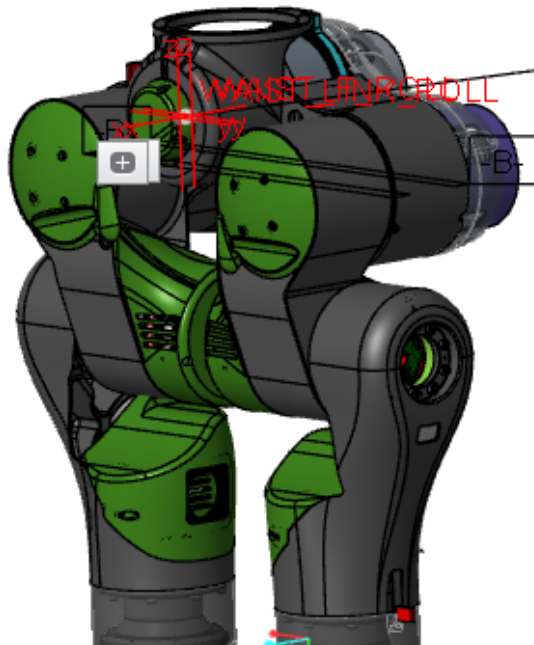
ROTATION ANGLES from ANKLE\_ROLL orientation to PRINCIPAL AXES (degrees):

angles about x y z 0.140 4.162 -0.110

RADII OF GYRATION with respect to PRINCIPAL AXES:

R1 R2 R3 3.2604875e+01 5.4802981e+01 6.0071234e+01 MM

# From waist to waist-roll link



| All References |         |    |
|----------------|---------|----|
| Distance       | 12.0000 | mm |
| Transform      | Matrix  |    |

Measure: Summary

Analysis Feature

Setup

| Reference                 | Options |
|---------------------------|---------|
| WAIST_F_ROLL:F11(CSYS)    |         |
| WAIST_LINK_ROLL:F20(CSYS) |         |

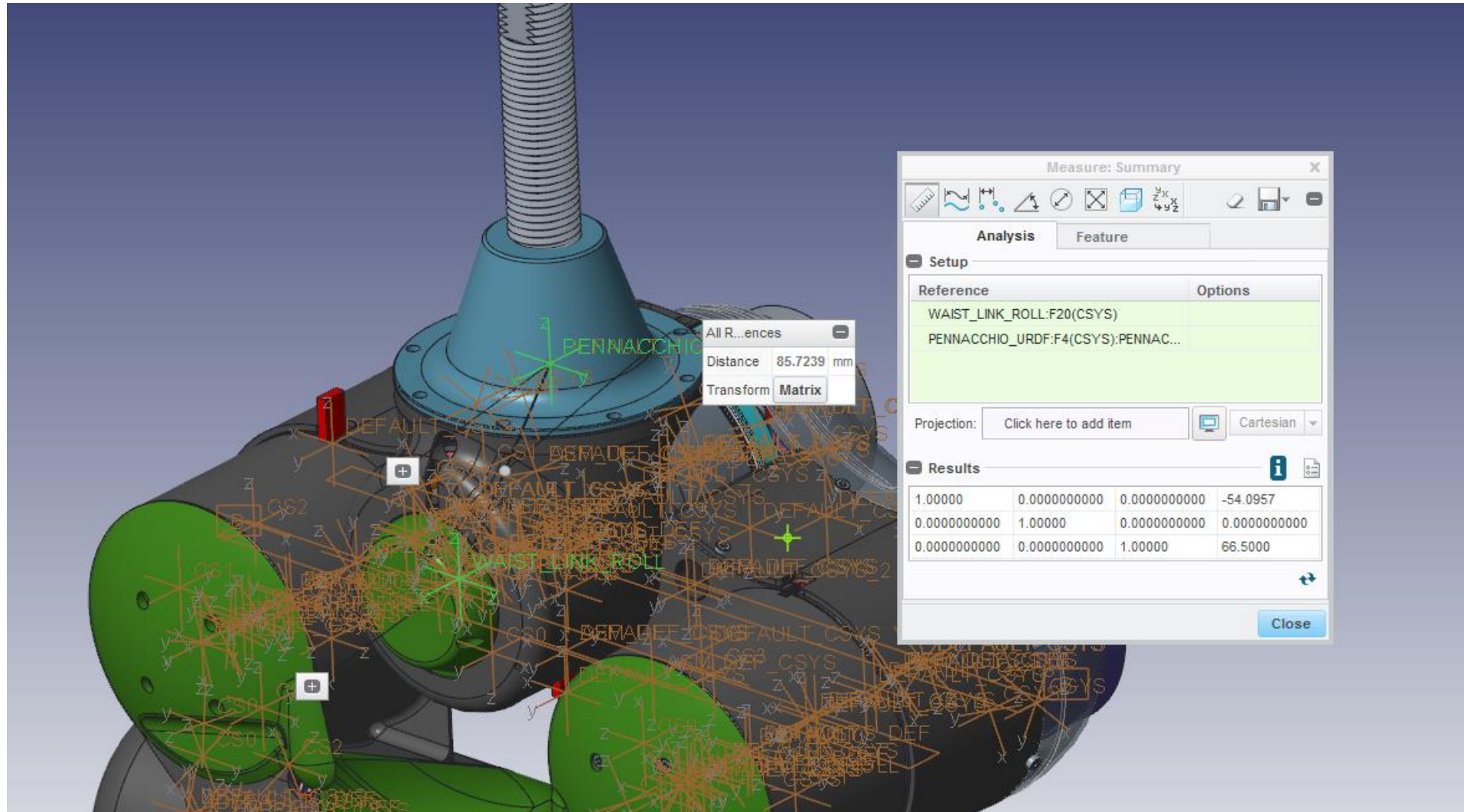
Projection: Click here to add item Cartesian

Results

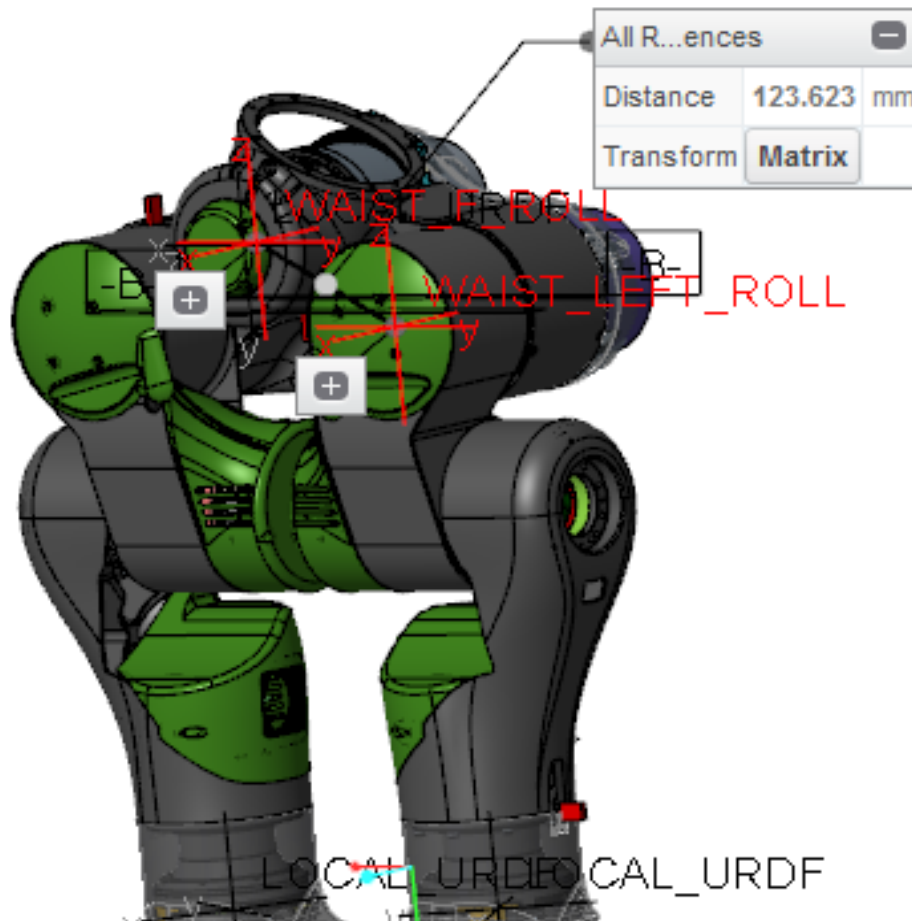
|              |              |              |              |
|--------------|--------------|--------------|--------------|
| 1.00000      | 0.0000000000 | 0.0000000000 | 12.0000      |
| 0.0000000000 | 1.00000      | 0.0000000000 | 0.0000000000 |
| 0.0000000000 | 0.0000000000 | 1.00000      | 0.0000000000 |

Close









# From waist-roll link to pennacchio






# From waist to hip roll



Measure: Summary





Analysis


Feature

Setup



| Reference                 | Options |
|---------------------------|---------|
| WAIST_F_ROLL:F11(CSYS)    |         |
| WAIST_LEFT_ROLL:F14(CSYS) |         |
|                           |         |

Projection: 


Click here to add item

 Cartesian

Results

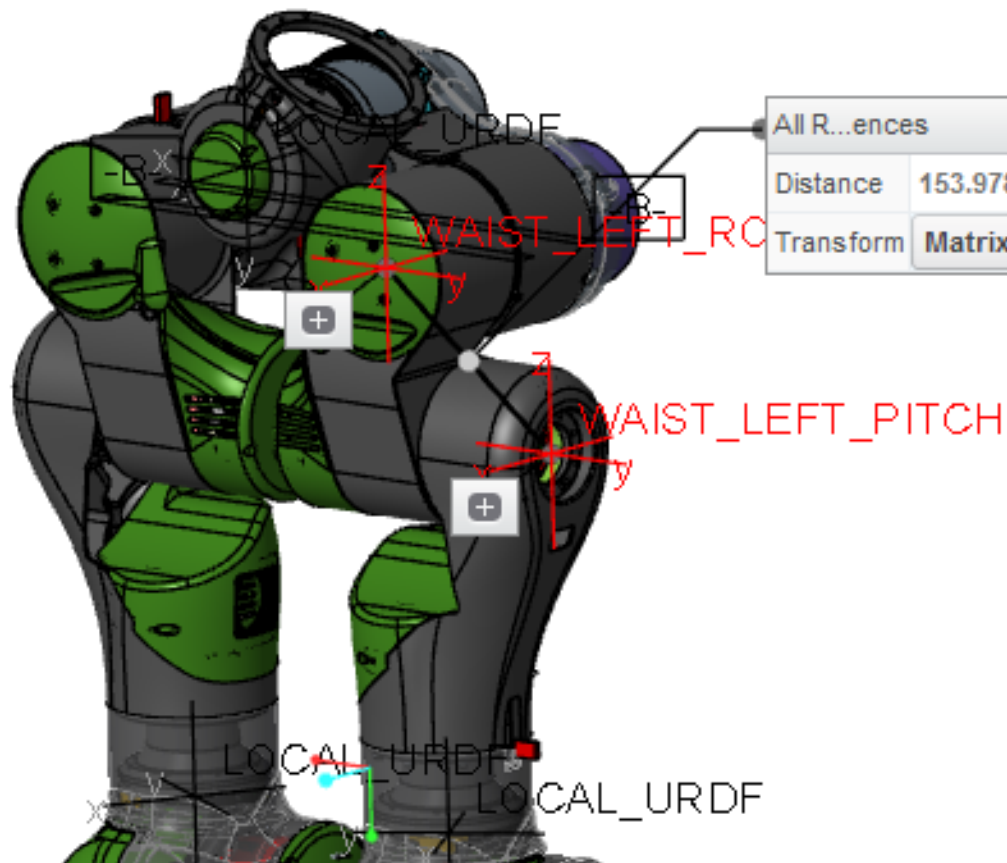


|              |              |              |          |
|--------------|--------------|--------------|----------|
| 1.00000      | 0.0000000000 | 0.0000000000 | 15.4500  |
| 0.0000000000 | 1.00000      | 0.0000000000 | 112.000  |
| 0.0000000000 | 0.0000000000 | 1.00000      | -50.0000 |



Close

# From hip-roll 2 hip-pitch



Measure: Summary

Analysis Feature

Setup

| Reference                  | Options |
|----------------------------|---------|
| WAIST_LEFT_ROLL:F14(CSYS)  |         |
| WAIST_LEFT_PITCH:F15(CSYS) |         |

Projection: Click here to add item Cartesian

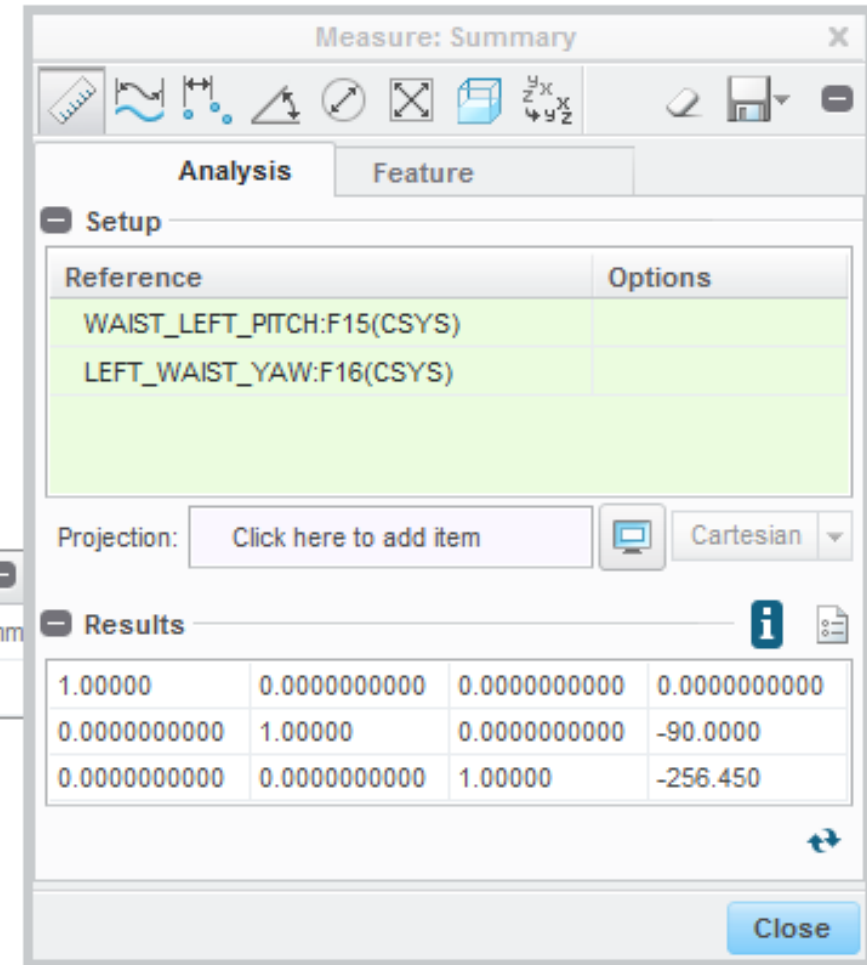
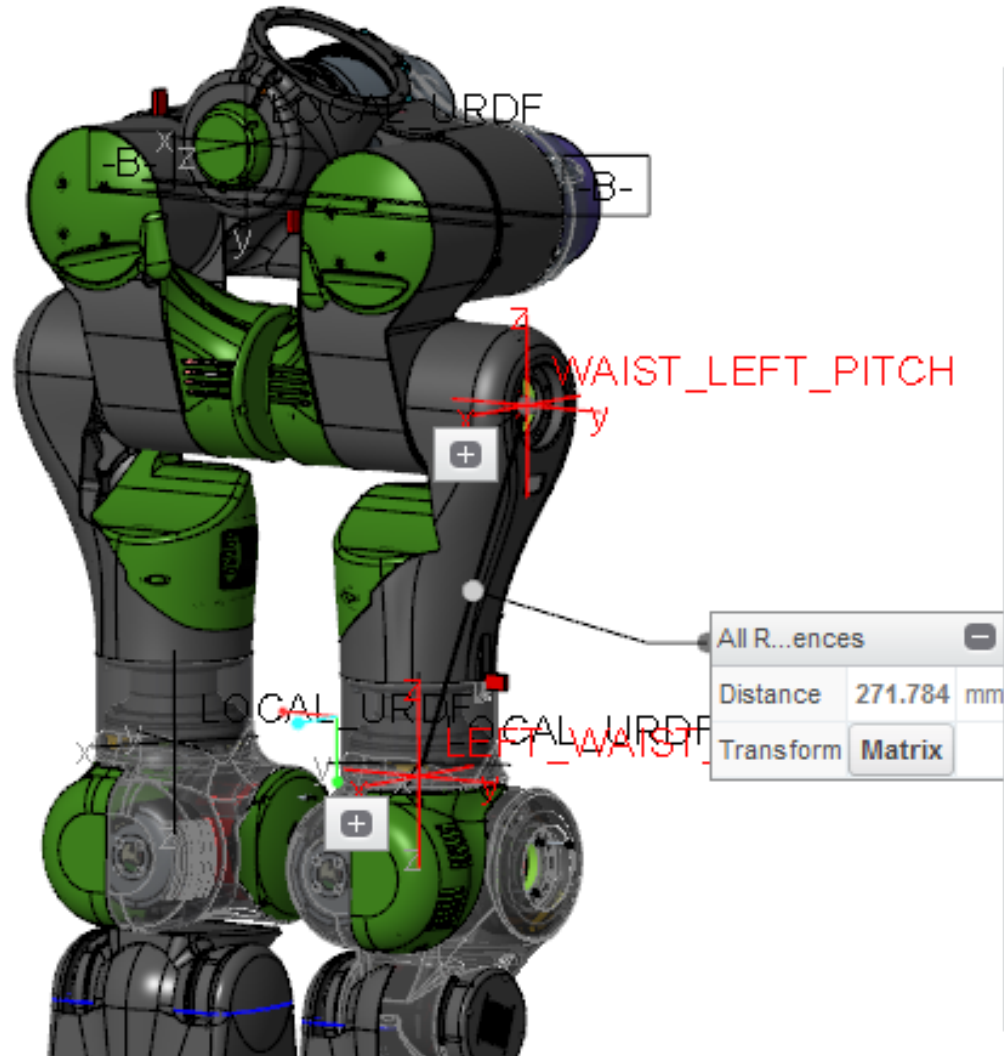
Results

|              |              |              |          |
|--------------|--------------|--------------|----------|
| 1.00000      | 0.0000000000 | 0.0000000000 | -59.0000 |
| 0.0000000000 | 1.00000      | 0.0000000000 | 78.6500  |
| 0.0000000000 | 0.0000000000 | 1.00000      | -118.500 |

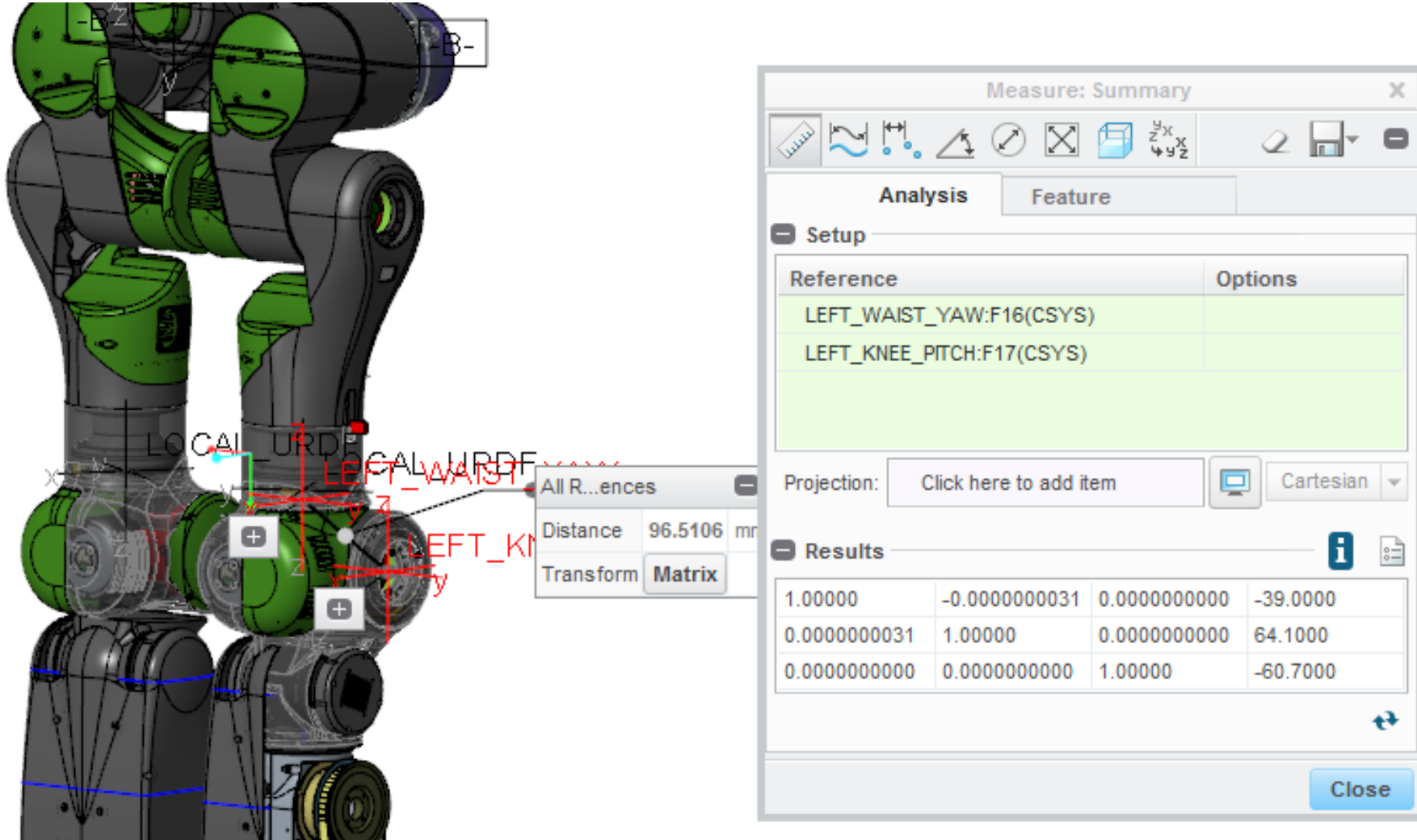
Close



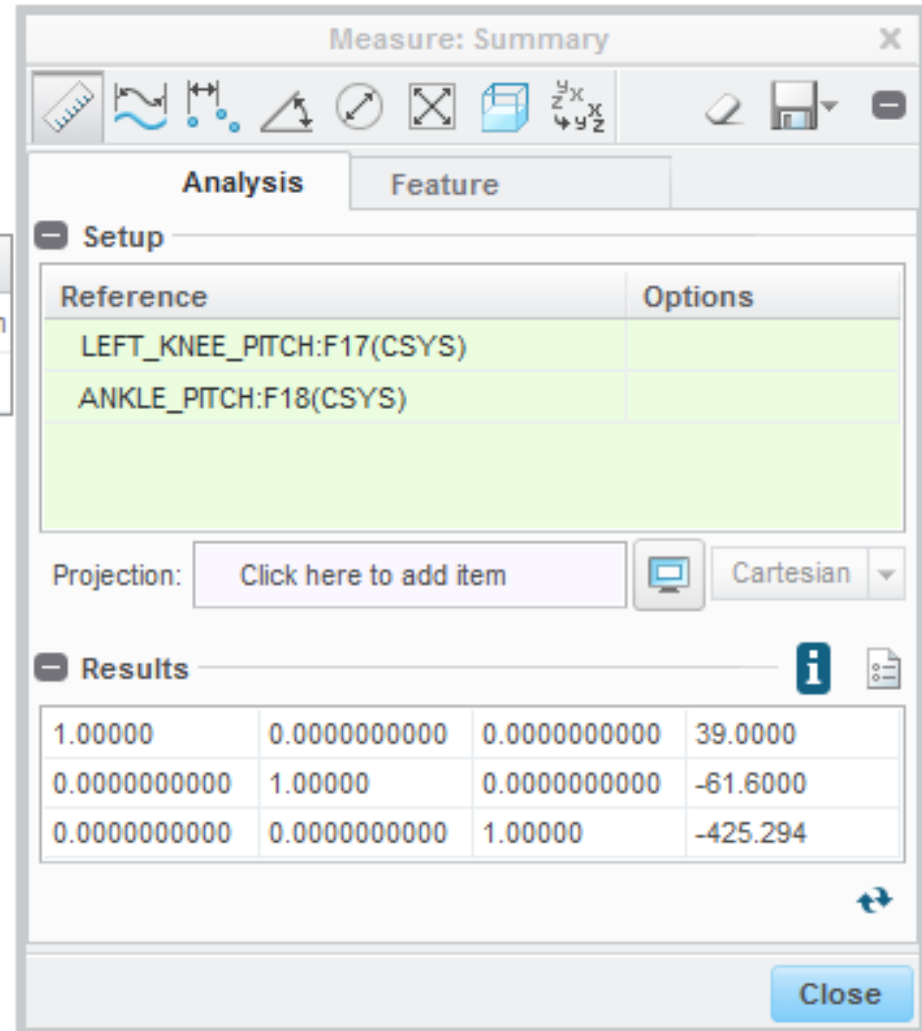
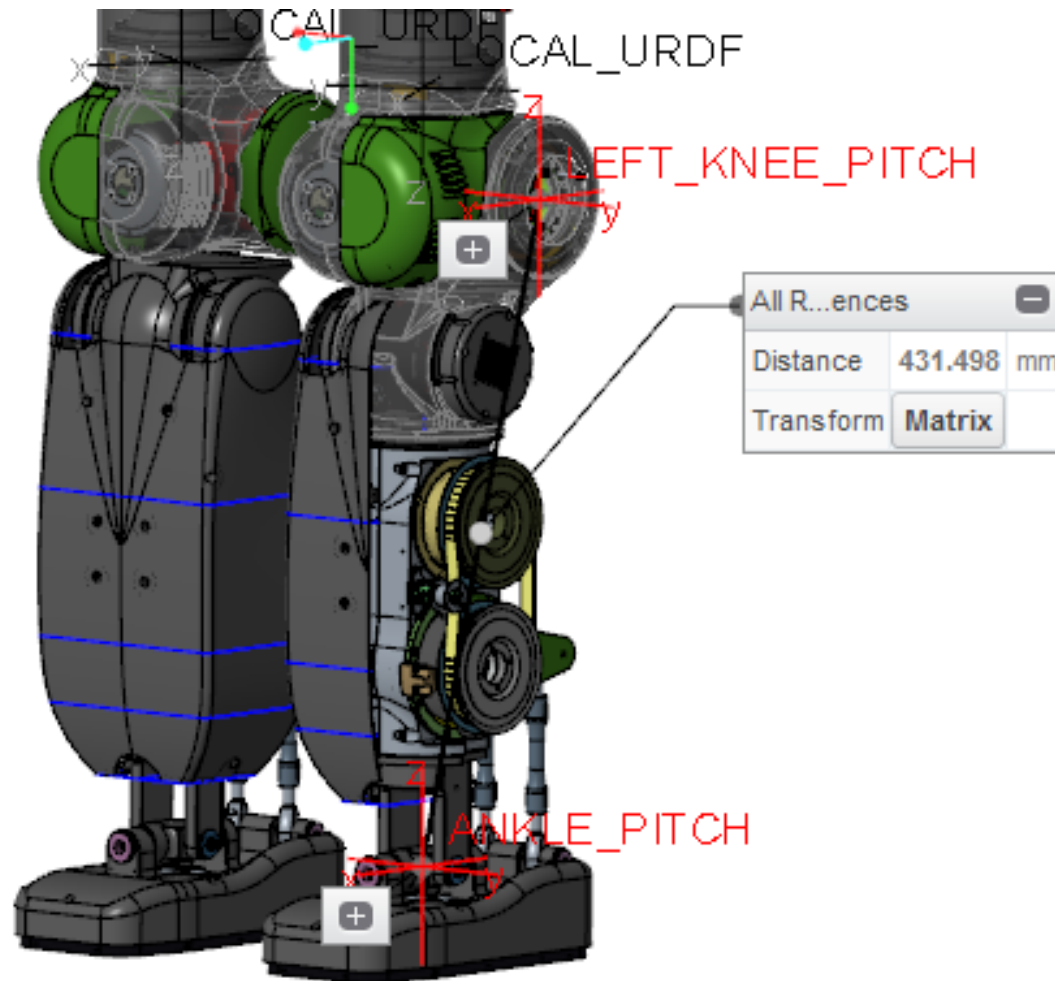
# From hip-pitch 2 hip-yaw



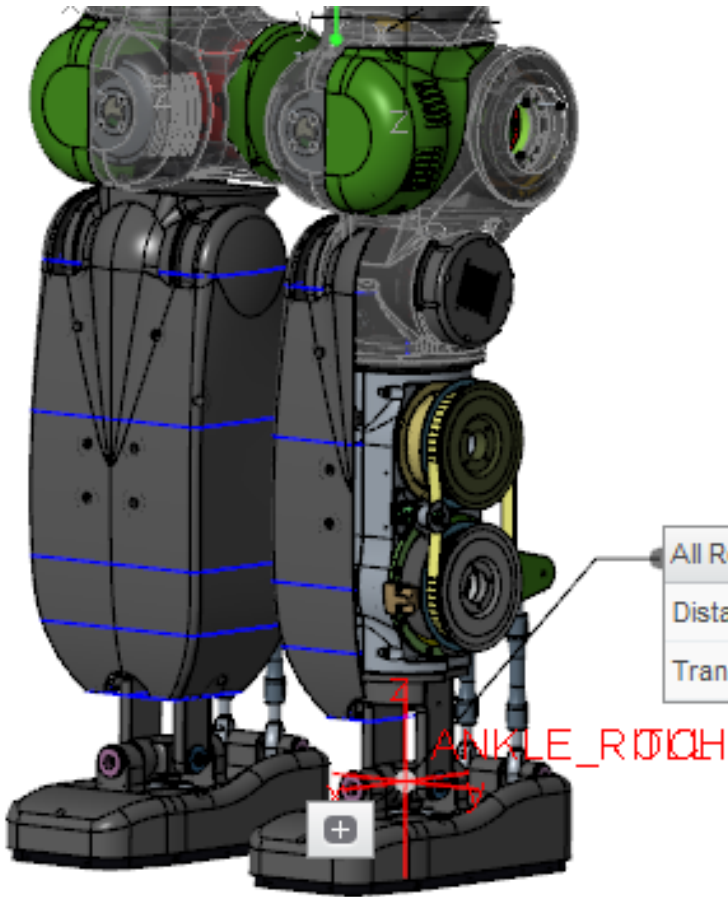
# From hip-yaw 2 knee-pitch



from Knee-pitch 2 ankle pitch



# From ankle pitch 2 ankle roll



All References

|           |                |
|-----------|----------------|
| Distance  | 0.0000000000 m |
| Transform | Matrix         |

Measure: Summary

Analysis Feature

Setup

| Reference             | Options |
|-----------------------|---------|
| ANKLE_PITCH:F18(CSYS) |         |
| ANKLE_ROLL:F19(CSYS)  |         |

Projection: Click here to add item Cartesian

Results

|              |              |              |              |
|--------------|--------------|--------------|--------------|
| 1.00000      | 0.0000000000 | 0.0000000000 | 0.0000000000 |
| 0.0000000000 | 1.00000      | 0.0000000000 | 0.0000000000 |
| 0.0000000000 | 0.0000000000 | 1.00000      | 0.0000000000 |

Close