Indices

Data

r(i) radius of the cargo I

h(i) height of the cargo I

m(i) weight of the cargo I

L(j) length of the vehicle j

H(j) height of the vehicle j

W(j) width of the vehicle j

M(j) weight of the vehicle j

Decision Variables

1 if the package is in the vehicle j,0 otherwise  
 x position of the package i

y position of the package i

z the position of the package i

the position of right bottom of the package i

the position of left bottom of the package i

the position of top of the package I

absolute value of the distance cargo I to k

absolute value of the distance between cargo I to k

absolute value of the distance between cargo I to k

1 if the length of item i is parallel to X-axis, 0 otherwise.

1 if the length of item i is parallel to Y-axis, 0 otherwise.

1 if the width of item i is parallel to X-axis, 0 otherwise.

1 if the width of item i is parallel to Y-axis, 0 otherwise.

Continuous variables denoting barycentre of bin j on the x-, y- and z- axes respectively

the package k position on the x+, x-, y+, y-, z+ and z- axes respectively

its equal to

its equal to

its equal to

its equal to

its equal to

its equal to

its equal to

its equal to

its equal to

its equal to

1 if the cargo k right of the i

1 if the cargo k left of the i

1 if the cargo k front of the i

1 if the cargo k behind of the i

1 if the cargo k top of the i

1 if the cargo k bottom of the I

Formulation

S.T.