Max generation: 300

Population size: 400

N: 10

Mutation case: Case2

Survivor selection type: Generational

Results of x_over methods:

(The green color shows the value in this dimension is approximately zero)
(f_array is function values in different dimensions)

- **XOVER_METHOD = LOCAL_DISC**

  fitness = 0.00012727566263492918 (the result rounded)

  x = [420.9687468, 420.9687467, 420.9687462,
  420.968746, 420.9687451, 420.9687469,
  420.9687472, 420.9687453, 420.9687467,
  420.968745]

  f_array = [1.2727566286230285e-05, 1.2727566286230285e-05,
  1.2727566229386866e-05, 1.2727566229386866e-05,
  1.272756651360396e-05, 1.2727566343073704e05,
  1.2727566343073704e-05, 1.2727566399917123e-05,
  1.2727566286230285e-05, 1.272756651360396e-05]

- **XOVER_METHOD = LOCAL_INT**

  fitness = 1362.1149460891397

  x = [420.9687465, 203.8142529, 65.5478653,
  65.5478648, 203.8142533, 420.9687462,

203.8142524, 420.9687466, 420.9687466,
420.9687463]

f_array: [1.2727566229386866e-05, 217.13968211813918,
355.34791804844554, 355.34791804844554,
217.13968211813923, 1.2727566229386866e-05,
217.13968211813915, 1.2727566286230285e-05,
1.2727566286230285e-05, 1.2727566229386866e-05]

- **XOVER_METHOD = GLOBAL_DISC**

fitness = 0.00012727566263492918

x = [420.9687471, 420.9687455, 420.9687457,
420.9687475, 420.9687471, 420.9687469,
420.9687465, 420.9687475, 420.9687467,
420.9687475]

f_array: [1.2727566343073704e-05, 1.2727566343073704e-05,
1.2727566343073704e-05, 1.2727566399917123e-05,
1.2727566343073704e-05, 1.2727566343073704e-05,
1.2727566229386866e-05, 1.2727566399917123e-05,
1.2727566286230285e-05, 1.2727566399917123e-05]

- **XOVER_METHOD = GLOBAL_INT**

fitness = 868.5588048379536

x = [203.8142527, 203.8142524, 203.814253,
420.968746, 203.8142524, 420.968746,
420.9687462, 420.9687469, 420.9687465,
420.9687462]

f_array: [217.13968211813918, 217.13968211813915,
217.1396821181392, 1.2727566229386866e-05,
217.13968211813915, 1.2727566229386866e-05,
1.2727566229386866e-05, 1.2727566343073704e-05,
1.2727566229386866e-05, 1.2727566229386866e-05]

Max generation: 300

Population size: 400

N: 10

Xover method: Case2

Survivor selection type: Generational

Results of mutation methods:

- **MUTATION_MODE = CASE1**

  fitness = 355.34803259654154

  x = [420.9687455, 420.9687462, 420.9687467,
  420.9687468, 420.9687466, 65.547864,
  420.9687469, 420.9687472, 420.9687462,
  420.968746]

  f_array: [1.2727566343073704e-05, 1.2727566229386866e-05,
  1.2727566286230285e-05, 1.2727566286230285e-05,
  1.2727566286230285e-05, 355.34791804844565,
  1.2727566343073704e-05, 1.2727566343073704e-05,
  1.2727566229386866e-05, 1.2727566229386866e-05]

- **MUTATION_MODE = CASE2**

  fitness = 0.00012727566263492918 (the result rounded)

  x = [420.9687468, 420.9687467, 420.9687462,
  420.968746, 420.9687451, 420.9687469,
  420.9687472, 420.9687453, 420.9687467,
  420.968745]

f_array = [1.2727566286230285e-05, 1.2727566286230285e-05,
1.2727566229386866e-05, 1.2727566229386866e-05,
1.272756651360396e-05, 1.2727566343073704e05,
1.2727566343073704e-05, 1.2727566399917123e-05,
1.2727566286230285e-05, 1.272756651360396e-05]

Compare X-over methods:

LOCAL_DISC:	10/10	of dimensions get approximate zero
LOCAL_INT:	5/10	of dimensions get approximate zero
GLOBAL_DISC:	10/10	of dimensions get approximate zero
GLOBAL_INT:	6/10	of dimensions get approximate zero

(The orange color show that this method got better value in compare with other)

GLOBAL_DISC

f_array: [1.2727566286230285e-05, 1.2727566229386866e-05,
1.2727566456760542e-05, 1.2727566286230285e-05,
1.2727566286230285e-05, 1.2727566229386866e-05,
1.2727566286230285e-05, 1.2727566229386866e-05,
1.2727566343073704e-05, 1.2727566172543447e-05]

LOCAL_DISC

f_array: [1.2727566343073704e-05, 1.2727566343073704e-05,
1.2727566343073704e-05, 1.2727566229386866e-05,
1.2727566343073704e-05, 1.2727566286230285e-05,
1.2727566229386866e-05, 1.2727566343073704e-05,
1.2727566286230285e-05, 1.2727566172543447e-05]

for comparing **GLOBAL_DISC** and **LOCAL_DISC** as we look at their f_array(function values in dimensions):

in **6** of dimensions **GLOBAL_DISC** got **better** value,
In **3** of dimensions **LOCAL_DISC** got **better** value.
and in **1** dimension they **got the same** value.