Longest diagonally magic queen's tour on a 9x9-board

A long diagonally magic queen tour on an 9x9-board is more likely in a symmetric bimagic square than in a non-symmetric because tours from entry x to 41 go on until entry (82 – x).

In the set of symmetric bimagic 9x9-squares, found together with **Holger Danielsson** in 2018, the longest queens tour has 28 moves, starts from 27 and ends in 55.

3	57	32	43	56	66	71	37	4
59	15	33	65	12	64	7	68	46
31	44	27	69	28	5	22	80	63
34	61	81	29	6	40	62	9	47
74	58	30	10	41	72	52	24	8
35	73	20	42	76	53	1	21	48
19	2	60	77	54	13	55	38	51
36	14	75	18	70	17	49	67	23
78	45	11	16	26	39	50	25	79

Statistic investigations can be done with the methods described in my website:

https://www.trump.de/magic-squares/estimates/index.html

10x10

Statistically it is very unlikely that a diagonally magic queen's tour exists on a 9x9 or 10x10 board.

11x11

There is a realistic chance to find such a tour on an 11x11 board.

12x12

Statistically it is absolutely sure that a diagonally magic queen's tour exists on a 12x12 board. But it will be difficult to find a sample.