There are several approaches for creating double-ended heaps from the single-ended heaps. We build on one of them, the leaf correspondence heap, to create a generic double ended heap scheme called L-correspondence heap. This will broaden the class of eligible base single-ended heaps (e.g. by Fibonacci heap, Rank-pairing heap) and make the operations Decrease and Increase possible. We show this approach on specific examples for three different single-ended base heaps and give time complexity bounds for all operations. Another result is that for these three examples, the expected amortized time for Decrease and Increase operations in the L-correspondence heap is bounded by a constant.