

# Lognormal Distribution

**ARL Table for scale parameter decrease from the in-control value in LN(0,1)**

$\sigma$	$\mu_X$	$n = 5$				$n = 10$				$n = 20$			
		$\bar{X}$ chart		$\tilde{X}$ chart		$\bar{X}$ chart		$\tilde{X}$ chart		$\bar{X}$ chart		$\tilde{X}$ chart	
		$ARL^-$	$ARL$	$ARL^-$	$ARL$	$ARL^-$	$ARL$	$ARL^-$	$ARL$	$ARL^-$	$ARL$	$ARL^-$	$ARL$
1.0	1.65	202.20	98.89	198.78	101.11	200.65	99.70	198.87	100.36	193.88	98.83	199.33	99.61
0.9	1.50	345.51	228.51	678.99	218.24	261.56	210.55	981.46	200.33	184.48	164.80	1564.11	159.70
0.8	1.38	711.97	610.49	2837.89	489.00	399.70	380.76	7898.24	343.30	186.28	183.97	27042.76	171.74

**ARL Table for shifts of both parameters increase from the in-control value in LN(0,1)**

$\mu$	$\sigma$	$\mu_X$	$n = 5$				$n = 10$				$n = 20$			
			$\bar{X}$ chart		$\tilde{X}$ chart		$\bar{X}$ chart		$\tilde{X}$ chart		$\bar{X}$ chart		$\tilde{X}$ chart	
			$ARL$	$ARL^+$	$ARL$	$ARL^+$	$ARL$	$ARL^+$	$ARL$	$ARL^+$	$ARL$	$ARL^+$	$ARL^+$	arryp.2
0.0	1.0	1.65	99.28	197.68	100.04	198.97	100.20	200.97	99.00	200.08	98.66	202.37	97.92	198.25
0.2	1.2	2.51	17.91	19.39	30.76	39.88	12.06	12.30	25.08	29.12	6.55	6.56	18.35	19.66
0.4	1.4	3.97	4.91	5.04	13.22	15.53	2.50	2.49	9.42	10.35	1.00	0.98	6.07	6.15
0.6	1.6	6.55	2.03	2.03	7.28	8.32	0.85	0.84	5.13	5.43	0.23	0.23	3.18	3.31
0.8	1.8	11.25	1.02	1.04	4.63	5.51	0.36	0.36	3.44	3.77	0.06	0.06	2.23	2.31

**ARL Table for shifts of both parameters decrease from the in-control value in LN(0,1)**

$\mu$	$\sigma$	$\mu_X$	$n = 5$				$n = 10$				$n = 20$			
			$\bar{X}$ chart		$\tilde{X}$ chart		$\bar{X}$ chart		$\tilde{X}$ chart		$\bar{X}$ chart		$\tilde{X}$ chart	
			$ARL^-$	$ARL$	$ARL^-$	$ARL$	$ARL^-$	$ARL$	$ARL^-$	$ARL$	$ARL^-$	$ARL$	$ARL$	arly.2
0.0	1.0	1.65	202.09	99.45	201.88	99.99	200.19	100.61	197.33	98.99	196.17	98.15	195.37	98.50
-0.2	0.8	1.13	140.01	139.47	279.47	463.17	51.12	50.44	161.66	3.44	0.06	0.06	2.23	2.23
-0.4	0.6	0.80	87.01	85.93	377.82	463.17	8.81	8.81	75.88	3.44	0.81	0.80	10.66	2.23
-0.6	0.4	0.59	41.47	41.07	463.17	463.17	0.69	0.70	12.81	3.44	0.00	0.00	0.36	2.23