Inserter		Belt	Setup		Items/second, a	Il directions [1]	
Туре	Stack size	Туре	Move type	Belt tile type	Min [2] [3]	Mean [4]	Max [5] [6]
		Express	Belt	One lane	22.50	22.50	22.50
		Express	Belt	Both lanes	45.00	45.00	45.00
		Fast	Belt	One lane	15.00	15.00	15.00
		Fast	Belt	Both lanes	30.00	30.00	30.00
		Basic	Belt	One lane	7.50	7.50	7.50
		Basic	Belt	Both lanes	15.00	15.00	15.00
Stack	12		Chest → chest		27.69	27.69	27.69
Stack	12	Express	Chest → belt		13.84	13.90	14.40 +4%
Stack	12	Express	Running belt items → chest	One lane, side or inner lane turn	10.00 -18%	12.18	13.84 +14%
Stack	12	Express	Running belt items → chest	Both lanes, side, no turn	7.50 -27%	10.29	12.85 +25%
Stack	12	Express	Queued belt items → chest	One lane, side or inner lane turn	13.33 -5%	14.04	16.00 +14%
Stack	12	Express	Queued belt items → chest	Both lanes, side, no turn	10.90 -10%	12.06	14.69 +22%
Stack	12	Fast	Chest → belt		10.90 -1%	10.96	11.42 +4%
Stack	12	Fast	Running belt items → chest	One lane, side or inner lane turn	10.00 -5%	10.55	11.25 +7%
Stack	12	Fast	Running belt items → chest	Both lanes, side, no turn	5.80 -33%	8.64	11.25 +30%
Stack	12	Fast	Queued belt items → chest	One lane, side or inner lane turn	11.07 -4%	11.52	12.85 +12%
Stack	12	Fast	Queued belt items → chest		10.00 -6%	10.61	12.20 +15%
Stack	12	Basic	Chest → belt	, ,	6.79 -1%	6.86	7.34 +7%
Stack	12	Basic		One lane, side or inner lane turn	6.42 -7%	6.89	7.50 +9%
Stack	12	Basic	Running belt items → chest		9.00	9.00	9.00
Stack	12	Basic		One lane, side or inner lane turn	6.85 -4%	7.13	7.50 +5%
Stack	12	Basic	Queued belt items → chest		9.00 -4%	9.36	9.64 +3%
Fast	3	200.0	Chest → chest		6.92	6.92	6.92
Fast	3	Express	Chest → belt		6.42	6.42	6.42
Fast	3	Express		One lane, side or inner lane turn	4.50 -17%	5.44	6.13 +13%
Fast	3	Express	Running belt items → chest		4.09 -19%	5.07	5.62 +11%
Fast	3	Express		One lane, side or inner lane turn	6.00 -6%	6.36	6.66 +5%
Fast	3	Express	Queued belt items → chest		6.20 -1%	6.27	6.42 +2%
Fast	3	Fast	Chest → belt	Dour lance, slae, no tam	6.00 -1%	6.04	6.42 +6%
Fast	3	Fast		One lane, side or inner lane turn	5.00 -10%	5.58	6.42 +15%
Fast	3	Fast	Running belt items → chest		4.09 -25%	5.42	6.42 +18%
Fast	3	Fast		One lane, side or inner lane turn	5.80 -7%	6.24	6.42 +3%
Fast	3	Fast	Queued belt items → chest		6.20	6.20	6.20
Fast	3	Basic	Chest → belt	Dott lanes, side, no tam	5.29 -2%	5.41	6.42 +19%
Fast	3	Basic		One lane, side or inner lane turn	4.50 -14%	5.21	6.13 +18%
Fast	3	Basic	Running belt items → chest		5.00 -10%	5.58	5.65 +1%
Fast	3	Basic		One lane, side or inner lane turn	5.80 -6%	6.16	6.66 +8%
Fast	3	Basic	Queued belt items → chest		6.20	6.20	6.20
Long-handed		Dasic	Chest → chest	Both lanes, side, no turn	3.52 -1%	3.56	3.60 +1%
Long-handed		Evpross	Chest → belt		3.39 -1%	3.42	3.46 +1%
		Express		One lane side or inner lane turn	2.64 -9%	2.89	3.40 +1%
Long-handed		· •	-	One lane, side or inner lane turn		2.09	
Long-handed		Express	Running belt items → chest		2.64 -11%		
Long-handed		Express		One lane, side or inner lane turn	3.15 -6%	3.36	3.46 +3%
Long-handed		Express	Queued belt items → chest	Doni idiles, side, no tum	3.46	3.46	3.46 +5%
Long-handed		Fast	Chest → belt	One least side on important true	3.27 -1%	3.31	3.46 +5%
Long-handed		Fast	•	One lane, side or inner lane turn	2.81 -6%	2.98	3.21 +8%
Long-handed		Fast	Running belt items → chest		2.36 -17%	2.85	3.00 +5%
Long-handed		Fast		One lane, side or inner lane turn	3.10 -7%	3.32	3.46 +4%
Long-handed		Fast	Queued belt items → chest	Both lanes, side, no turn	3.39	3.39	3.39
Long-handed		Basic	Chest → belt		3.05 -2%	3.11	3.46 +11%
Long-handed		Basic	-	One lane, side or inner lane turn	2.64 -10%	2.94	3.21 +9%
Long-handed		Basic	Running belt items → chest		2.50 -12%	2.84	3.21 +13%
Long-handed		Basic		One lane, side or inner lane turn	3.10 -5%	3.27	3.46 +6%
Long-handed		Basic	Queued belt items → chest	Both lanes, side, no turn	2.90 -9%	3.17	3.33 +5%
Basic	3		Chest → chest		2.50	2.50	2.50
Basic	3	Express	Chest → belt		2.43	2.43	2.43

Inserter		Belt	Setup		Items/second, a	all directions [1]	
Туре	Stack size	Туре	Move type	Belt tile type	Min [2] [3]	Mean [4]	Max [5] [6]
Basic	3	Express	Running belt items → chest	One lane, side or inner lane turn	1.95 -7%	2.09	2.25 +8%
Basic	3	Express	Running belt items → chest	Both lanes, side, no turn	1.87 -10%	2.07	2.25 +9%
Basic	3	Express	Queued belt items → chest	One lane, side or inner lane turn	2.33 -5%	2.45	2.57 +5%
Basic	3	Express	Queued belt items → chest	Both lanes, side, no turn	2.40 -2%	2.45	2.57 +5%
Basic	3	Fast	Chest → belt		2.36	2.37	2.43 +3%
Basic	3	Fast	Running belt items → chest	One lane, side or inner lane turn	2.04 -8%	2.21	2.36 +7%
Basic	3	Fast	Running belt items → chest	Both lanes, side, no turn	1.87 -11%	2.10	2.25 +7%
Basic	3	Fast	Queued belt items → chest	One lane, side or inner lane turn	2.30 -6%	2.44	2.53 +4%
Basic	3	Fast	Queued belt items → chest	Both lanes, side, no turn	2.43 -1%	2.46	2.53 +3%
Basic	3	Basic	Chest → belt		2.25 -1%	2.27	2.43 +7%
Basic	3	Basic		One lane, side or inner lane turn	2.04 -7%	2.20	2.32 +5%
Basic	3	Basic	Running belt items → chest		1.73 -15%	2.03	2.50 +23%
Basic	3	Basic		One lane, side or inner lane turn	2.25 -6%	2.39	2.50 +5%
Basic	3	Basic	Queued belt items → chest		2.40	2.40	2.40
Burner	3	Buoio	Chest → chest	Dott lands, slas, no tam	1.78 -1%	1.79	1.80 +1%
Burner	3	Express	Chest → belt		1.74 -1%	1.75	1.76 +1%
Burner	3	Express		One lane, side or inner lane turn	1.32 -8%	1.44	1.60 +11%
Burner	3	Express	Running belt items → chest		1.25 -10%	1.44	1.60 +11%
Burner	3	Express		One lane, side or inner lane turn	1.66 -7%	1.78	1.87 +5%
Burner	3	·	Queued belt items → chest		1.74 -3%	1.78	1.87 +5%
	3	Express		Botti laries, side, no turn		1.79	1.76 +2%
Burner		Fast	Chest → belt		1.71 -1%		
Burner	3	Fast		One lane, side or inner lane turn	1.45 -8%	1.58	1.73 +9%
Burner	3	Fast	Running belt items → chest		1.36 -7%	1.46	1.66 +14%
Burner	3	Fast		One lane, side or inner lane turn	1.68 -5%	1.77	1.85 +5%
Burner	3	Fast	Queued belt items → chest	Both lanes, side, no turn	1.73 -3%	1.78	1.85 +4%
Burner	3	Basic	Chest → belt		1.65 -1%	1.67	1.76 +5%
Burner	3	Basic	-	One lane, side or inner lane turn	1.38 -13%	1.58	1.73 +9%
Burner	3	Basic	Running belt items → chest		1.32 -9%	1.45	1.73 +19%
Burner	3	Basic		One lane, side or inner lane turn	1.65 -6%	1.75	1.81 +3%
Burner	3	Basic	Queued belt items → chest	Both lanes, side, no turn	1.74 -1%	1.76	1.80 +2%
Stack	4		Chest → chest		9.23	9.23	9.23
Stack	4	Express	Chest → belt		7.74 -1%	7.78	8.00 +3%
Stack	4	Express	Running belt items → chest	One lane, side or inner lane turn	6.00 -11%	6.74	7.50 +11%
Stack	4	Express	Running belt items → chest	Both lanes, side, no turn	6.00 -9%	6.60	7.50 +14%
Stack	4	Express	Queued belt items → chest	One lane, side or inner lane turn	7.50 -6%	7.97	8.27 +4%
Stack	4	Express	Queued belt items → chest	Both lanes, side, no turn	8.00	8.00	8.00
Stack	4	Fast	Chest → belt		7.05 -1%	7.12	7.74 +9%
Stack	4	Fast	Running belt items → chest	One lane, side or inner lane turn	6.00 -9%	6.59	7.50 +14%
Stack	4	Fast	Running belt items → chest	Both lanes, side, no turn	5.00 -18%	6.11	6.66 +9%
Stack	4	Fast	Queued belt items → chest	One lane, side or inner lane turn	7.27 -4%	7.58	8.00 +6%
Stack	4	Fast	Queued belt items → chest	Both lanes, side, no turn	6.66 -4%	6.92	7.50 +8%
Stack	4	Basic	Chest → belt		5.71 <b>-2</b> %	5.83	6.66 +14%
Stack	4	Basic	Running belt items → chest	One lane, side or inner lane turn	5.00 -15%	5.90	7.50 +27%
Stack	4	Basic	Running belt items → chest	Both lanes, side, no turn	5.62 -10%	6.27	6.92 +10%
Stack	4	Basic	Queued belt items → chest	One lane, side or inner lane turn	5.85 -9%	6.45	7.50 +16%
Stack	4	Basic	Queued belt items → chest	Both lanes, side, no turn	6.66 -3%	6.85	7.05 +3%
Fast	2		Chest → chest		4.61	4.61	4.61
Fast	2	Express	Chest → belt		4.44	4.44	4.44
Fast	2	Express	Running belt items → chest	One lane, side or inner lane turn	3.46 -13%	3.96	4.50 +14%
Fast	2	Express	Running belt items → chest		4.09 -4%	4.26	4.41 +4%
Fast	2	Express	_	One lane, side or inner lane turn	4.28 -4%	4.48	4.80 +7%
Fast	2	Express	Queued belt items → chest		4.28 -3%	4.39	4.61 +5%
Fast	2	Fast	Chest → belt	22,	4.44	4.44	4.44
Fast	2	Fast		One lane, side or inner lane turn	3.75 -8%	4.06	4.61 +14%
Fast	2	Fast	Running belt items → chest		3.75 -8%	4.08	4.61 +13%
ı aəl	2	Fast	_	One lane, side or inner lane turn	4.28 -4%	4.08	4.80 +7%

Inserter		Belt	Setup		Items/second, a	all directions [1]		
Туре	Stack size	Туре	Move type	Belt tile type	Min [2] [3]	Mean [4]	Max [5]	[6]
Fast	2	Fast	Queued belt items → chest	Both lanes, side, no turn	4.28 -3%	4.39	4.61	+5%
Fast	2	Basic	Chest → belt		4.44	4.44	4.44	
Fast	2	Basic	Running belt items → chest	One lane, side or inner lane turn	3.75 -11%	4.20	4.50	+7%
Fast	2	Basic	Running belt items → chest	Both lanes, side, no turn	4.28 - <mark>2</mark> %	4.35	4.50	+3%
Fast	2	Basic	Queued belt items → chest	One lane, side or inner lane turn	4.28 -4%	4.48	4.80	+7%
Fast	2	Basic	Queued belt items → chest	Both lanes, side, no turn	4.28 -3%	4.39	4.61	+5%
Long-handed	2		Chest → chest		2.35 -1%	2.37	2.40	+1%
Long-handed	2	Express	Chest → belt		2.30 -1%	2.33	2.35	+1%
Long-handed	2	Express	Running belt items → chest	One lane, side or inner lane turn	1.76 -12%	2.00	2.14	+7%
Long-handed	2	Express	Running belt items → chest		2.14	2.14	2.14	
Long-handed	2	Express	Queued belt items → chest	One lane, side or inner lane turn	2.18 -6%	2.31	2.40	+4%
Long-handed	2	Express	Queued belt items → chest		2.30 -1%	2.33	2.40	+3%
Long-handed	2	Fast	Chest → belt		2.30 -1%	2.33	2.35	
Long-handed	2	Fast		One lane, side or inner lane turn	1.87 -11%	2.10	2.22	
Long-handed	2	Fast	Running belt items → chest		2.00 -8%	2.17	2.22	
Long-handed	2	Fast	-	One lane, side or inner lane turn	2.18 -5%	2.30	2.40	
Long-handed	2	Fast	Queued belt items → chest		2.26 -3%	2.33	2.40	
Long-handed	2	Basic	Chest → belt		2.30 -1%	2.33	2.35	
Long-handed	2	Basic		One lane, side or inner lane turn	2.14 -2%	2.33	2.34	
Long-handed	2	Basic	Running belt items → chest		2.14 -4%	2.10	2.30	
Long-handed	2	Basic		One lane, side or inner lane turn	2.14 -4%	2.31	2.40	
	2	Basic	Queued belt items → chest		2.30 -1%	2.33	2.40	
Long-handed Basic	2	Dasic		Both lanes, side, no turn	1.66	1.66	1.66	T370
		Fynrasa	Chest → chest					
Basic	2	Express	Chest → belt	One lene side suinnes lene turn	1.64	1.64	1.64	
Basic	2	Express		One lane, side or inner lane turn	1.30 -8%	1.42		+13%
Basic	2	Express	Running belt items → chest		1.30 -10%	1.45		+10%
Basic	2	Express		One lane, side or inner lane turn	1.60 -4%	1.67	1.76	
Basic	2	Express	Queued belt items → chest	Both lanes, side, no turn	1.62 -2%	1.66	1.76	+6%
Basic	2	Fast	Chest → belt		1.64	1.64	1.64	. 70/
Basic	2	Fast		One lane, side or inner lane turn	1.42 -8%	1.55	1.66	
Basic	2	Fast	Running belt items → chest		1.50 -6%	1.60	1.66	
Basic	2	Fast		One lane, side or inner lane turn	1.60 -4%	1.67	1.76	
Basic	2	Fast	Queued belt items → chest	Both lanes, side, no turn	1.62 -2%	1.66	1.76	+6%
Basic	2	Basic	Chest → belt		1.64	1.64	1.64	
Basic	2	Basic		One lane, side or inner lane turn	1.50 -7%	1.62	1.66	
Basic	2	Basic	Running belt items → chest	Both lanes, side, no turn	1.57 -4%	1.64	1.66	+1%
Basic	2	Basic	Queued belt items → chest	One lane, side or inner lane turn	1.60 -4%	1.67	1.76	+5%
Basic	2	Basic	Queued belt items → chest	Both lanes, side, no turn	1.62 -2%	1.66	1.76	+6%
Burner	2		Chest → chest		1.18 -1%	1.19	1.20	+1%
Burner	2	Express	Chest → belt		1.17 -1%	1.18	1.18	
Burner	2	Express	Running belt items → chest	One lane, side or inner lane turn	0.88 -13%	1.01	1.15	+14%
Burner	2	Express	Running belt items → chest	Both lanes, side, no turn	0.78 -20%	0.97	1.15	+19%
Burner	2	Express	Queued belt items → chest	One lane, side or inner lane turn	1.15 -5%	1.21	1.29	+7%
Burner	2	Express	Queued belt items → chest	Both lanes, side, no turn	1.17 -3%	1.21	1.29	+7%
Burner	2	Fast	$Chest \to belt$		1.17 -1%	1.18	1.18	
Burner	2	Fast	Running belt items $\rightarrow$ chest	One lane, side or inner lane turn	0.96 -14%	1.11	1.20	+8%
Burner	2	Fast	Running belt items → chest	Both lanes, side, no turn	0.96 -13%	1.10	1.20	+9%
Burner	2	Fast	Queued belt items $\rightarrow$ chest	One lane, side or inner lane turn	1.15 -5%	1.21	1.29	+7%
Burner	2	Fast	Queued belt items → chest	Both lanes, side, no turn	1.17 -3%	1.21	1.29	+7%
Burner	2	Basic	Chest → belt		1.17 -1%	1.18	1.18	
Burner	2	Basic	Running belt items → chest	One lane, side or inner lane turn	1.00 -12%	1.14	1.25	+10%
Burner	2	Basic	Running belt items → chest		1.00 -12%	1.13		+11%
Burner	2	Basic	-	One lane, side or inner lane turn	1.15 -5%	1.21	1.29	
Burner	2	Basic	Queued belt items → chest		1.17 -3%	1.21	1.29	
Stack	2		Chest → chest		4.61	4.61	4.61	. 70
Stack	2	Evnroos	Chest → belt		4.44	4.44	4.44	

Inserter		Belt	Setup		Items/second,	all directions [1]	
Туре	Stack size	Туре	Move type	Belt tile type	Min [2] [3]	Mean [4]	Max [5] [6]
Stack	2	Express	Running belt items → chest	One lane, side or inner lane turn	3.46 -13%	3.96	4.50 +14%
Stack	2	Express	Running belt items → chest	Both lanes, side, no turn	4.09 -4%	4.26	4.41 +4%
Stack	2	Express	Queued belt items → chest	One lane, side or inner lane turn	4.28 -4%	4.48	4.80 +7%
Stack	2	Express	Queued belt items → chest	Both lanes, side, no turn	4.28 -3%	4.39	4.61 +5%
Stack	2	Fast	Chest → belt		4.44	4.44	4.44
Stack	2	Fast	Running belt items → chest	One lane, side or inner lane turn	3.75 -8%	4.06	4.61 +14%
Stack	2	Fast	Running belt items → chest	Both lanes, side, no turn	3.75 -8%	4.08	4.61 +13%
Stack	2	Fast	Queued belt items → chest	One lane, side or inner lane turn	4.28 -4%	4.48	4.80 +7%
Stack	2	Fast	Queued belt items → chest	Both lanes, side, no turn	4.28 -3%	4.39	4.61 +5%
Stack	2	Basic	Chest → belt		4.44	4.44	4.44
Stack	2	Basic		One lane, side or inner lane turn	3.75 -11%	4.20	4.50 +7%
Stack	2	Basic	Running belt items → chest		4.28 -2%	4.35	4.50 +3%
Stack	2	Basic		One lane, side or inner lane turn	4.28 -4%	4.48	4.80 +7%
Stack	2	Basic	Queued belt items → chest		4.28 -3%	4.39	4.61 +5%
Fast	1	240.0	Chest → chest		2.30	2.30	2.30
Fast	1	Express	Chest → belt		2.30	2.30	2.30
Fast	1	Express		One lane, side or inner lane turn	1.87 -11%	2.09	2.50 +20%
Fast	1	Express	Running belt items → chest		2.04 -9%	2.25	2.50 +11%
Fast	1	Express		One lane, side or inner lane turn	2.40	2.23	2.60 +8%
Fast	1	Express	Queued belt items → chest		2.40	2.40	2.40
Fast	1	Fast	Chest → belt	Dott lanes, side, no turn	2.30	2.30	2.30
Fast	1	Fast		One lane side or inner lane turn	2.14 -3%	2.20	2.50 +14%
Fast	1	Fast		One lane, side or inner lane turn	2.14 -5%	2.25	2.50 +14%
Fast	1	Fast	Running belt items → chest		2.14 -5%	2.23	2.60 +8%
				One lane, side or inner lane turn			
Fast	1	Fast	Queued belt items → chest	Both lanes, side, no turn	2.40	2.40	2.40
Fast	1	Basic	Chest → belt	One least side or important turn	2.30	2.30	2.30
Fast	1	Basic	-	One lane, side or inner lane turn	2.25 -6%	2.40	2.50 +4%
Fast	1	Basic	Running belt items → chest		2.25 -7%	2.41	2.50 +4%
Fast	1	Basic		One lane, side or inner lane turn	2.40	2.41	2.60 +8%
Fast	1	Basic	Queued belt items → chest	Both lanes, side, no turn	2.40	2.40	2.40
Long-handed	1	_	Chest → chest		1.17 -1%	1.18	1.20 +2%
Long-handed	1	Express	Chest → belt		1.17 -1%	1.18	1.20 +2%
Long-handed	1	Express	-	One lane, side or inner lane turn	0.93 -10%	1.03	1.11 +8%
Long-handed	1	Express	Running belt items → chest		1.07 -2%	1.09	1.11 +2%
Long-handed	1	•		One lane, side or inner lane turn	1.17 -3%	1.21	1.22 +1%
Long-handed	1		Queued belt items → chest	Both lanes, side, no turn	1.22	1.22	1.22
Long-handed	1	Fast	Chest → belt		1.17 -1%	1.18	1.20 +2%
Long-handed	1	Fast		One lane, side or inner lane turn	1.00 -8%	1.09	1.15 +6%
Long-handed	1	Fast	Running belt items → chest		1.07 -4%	1.12	1.15 +3%
Long-handed	1	Fast	Queued belt items → chest	One lane, side or inner lane turn	1.17 -3%	1.20	1.22 +2%
Long-handed	1	Fast	Queued belt items → chest	Both lanes, side, no turn	1.22	1.22	1.22
Long-handed	1	Basic	Chest → belt		1.17 -1%	1.18	1.20 +2%
Long-handed	1	Basic	Running belt items → chest	One lane, side or inner lane turn	1.07 -7%	1.15	1.25 +9%
Long-handed	1	Basic	Running belt items → chest	Both lanes, side, no turn	1.07 -8%	1.16	1.25 +8%
Long-handed	1	Basic	Queued belt items → chest	One lane, side or inner lane turn	1.17 -3%	1.21	1.22 +1%
Long-handed	1	Basic	Queued belt items → chest	Both lanes, side, no turn	1.22	1.22	1.22
Basic	1		Chest → chest		0.83	0.83	0.83
Basic	1	Express	Chest → belt		0.83	0.83	0.83
Basic	1	Express	Running belt items $\rightarrow$ chest	One lane, side or inner lane turn	0.68 -8%	0.74	0.83 +12%
Basic	1	Express	Running belt items $\rightarrow$ chest	Both lanes, side, no turn	0.72 -6%	0.77	0.83 +8%
Basic	1	Express	Queued belt items $\rightarrow$ chest	One lane, side or inner lane turn	0.86 -2%	0.88	0.95 +8%
Basic	1	Express	Queued belt items → chest	Both lanes, side, no turn	0.89	0.89	0.89
Basic	1	Fast	Chest → belt		0.83	0.83	0.83
Basic	1	Fast	Running belt items → chest	One lane, side or inner lane turn	0.75 -7%	0.81	0.88 +9%
Basic	1	Fast	Running belt items → chest		0.78 -7%	0.84	0.88 +5%
Basic	1	Fast	-	One lane, side or inner lane turn	0.86 -2%	0.88	0.95 +8%

Inserter		Belt	Setup		Items/second, a	all directions [1]		
Туре	Stack size	Туре	Move type	Belt tile type	Min [2] [3]	Mean [4]	Max [5]	[6]
Basic	1	Fast	Queued belt items → chest	Both lanes, side, no turn	0.89	0.89	0.89	
Basic	1	Basic	Chest → belt		0.83	0.83	0.83	
Basic	1	Basic	Running belt items → chest	One lane, side or inner lane turn	0.81 -6%	0.86	0.93	+8%
Basic	1	Basic	Running belt items → chest	·	0.88 -2%		0.93	
Basic	1	Basic		One lane, side or inner lane turn	0.86 -2%		0.95	+8%
Basic	1	Basic	Queued belt items → chest		0.89	0.89	0.89	
Burner	1		Chest → chest		0.59	0.59	0.60	+2%
Burner	1	Express	Chest → belt		0.59	0.59	0.60	
Burner	1	Express		One lane, side or inner lane turn	0.45 -13%	0.52		+10%
Burner	1	Express	Running belt items → chest		0.42 -16%	0.50		+14%
Burner	1	Express	•	One lane, side or inner lane turn	0.63 -2%	0.64	0.68	
Burner	1	Express	Queued belt items → chest		0.65	0.65	0.65	- 0 70
Burner	1	Fast	Chest → belt	Dottrianes, side, no turn	0.59	0.59	0.60	+2%
Burner	1	Fast		One lane, side or inner lane turn	0.50 -12%	0.57	0.62	
Burner	1	Fast			0.50 -12%	0.56		+11%
Burner	1	Fast	Running belt items → chest	One lane, side or inner lane turn	0.63 -2%	0.64	0.62	
		Fast			0.65	0.65		
Burner	1	Basic	Queued belt items → chest Chest → belt	Dour lailes, slue, NO luin	0.65	0.65	0.65	
				One lene side enimentane tum				
Burner Burner	1	Basic Basic	Running belt items → chest Running belt items → chest	One lane, side or inner lane turn	0.50 -17% 0.50 -17%	0.60		+13%
Burner	1		·	One lane, side or inner lane turn			0.68	
		Basic				0.64		+6%
Burner	1	Basic	Queued belt items → chest	Both lanes, side, no turn	0.65	0.65	0.65	

Inserter		Belt	Setup		Items/se	econd,	all directions [1]		
Туре	Stack size	Туре	Move type	Belt tile type	Min [2]	[3]	Mean [4]	Max [5]	[6]

Inserter Type	Stack siz	Belt e Type	Setup Move type	Belt tile type	Min [11] [12]	all directions, all Mean [13]	Max [14] [15]	Min [16] [17]		Max [19] [20]	Dito, west→east direction, all b Min [21] [22] Mean [23]	Max [24] [25]	Dito, north→sor Min [26] [27]		Max [29] [30
		Express	Belt	One lane	22.50	22.50	22.50								
		Express	Belt	Both lanes	45.00	45.00	45.00								
		Fast Fast	Belt Belt	One lane Both lanes	15.00 30.00	15.00 30.00	15.00 30.00								
		Basic	Belt	One lane	7.50	7.50	7.50								
		Basic	Belt	Both lanes	15.00	15.00	15.00								
ack	12		Chest → chest		27.69	27.69	27.69	27.69			27.69 27.69		27.69		
ack ack	12 12	Express	Chest → belt Chest → belt	Non-splitter Splitter	13.84	13.84 14.21	13.84	13.84			13.84 13.84		13.84		
ack ack	12	Express	Running belt items → chest		12.00	12.00	12.00	12.00			12.00 12.00		12.00		
ack	12	Express	Running belt items → chest		13.84	13.84	13.84	13.84			13.84 13.84		13.84		
ack	12	Express	Running belt items → chest	Straight, side, both lanes	11.25	11.25	11.25	11.25			11.25 11.25		11.25		
ack	12	Express		Straight, side, sideloaded onto empty belt	10.00 -11%		12.85 +14%	6 10.00 -11%			10.00 -11% 11.25		10.00 -11%		
ack	12	Express	Running belt items → chest		12.85	12.85	12.85	12.85			12.85 12.85		12.85		
tack tack	12	Express Express	Running belt items → chest Running belt items → chest		10.38 -7% 7.20 -22%	11.13 9.26 [32]	12.00 +8%	6 10.38 -7% 6 7.20 -22%			7 20 -22% 9 26		7.50 -16%	8.88	10.58 +
tack	12	Express		Underground, side, one lane	12.85 -2%	13.17	13.50 +3%	6 12.85 -2%			12.85 -2% 13.17		12.85 -2%	13.17	13.50
ack	12	Express	Running belt items → chest	Underground, side, both lanes	7.50 -24%	9.88 [33]	12.85 +30%	6 7.50 -24%	9.87	12.85 ±30%	7.50 -24% 9.87		9.64 -5%	10.18	10.80
tack	12	Express		Underground, front, one lane	12.27	12.27	12.27	12.27			12.27 12.27		12.27		
ack	12	Express		Underground, behind, one lane Underground, front/behind, both lanes	9.00 8.18 -18%	9.00	9.00	9.00			9.00 9.00		9.00	9.00	9.47
tack	12	Express		Underground, sideloaded onto empty belt	8.18 -18% 6.42 -21%	9.94 [34] 8.13 [35]	10.00 +23%	6 8.42 -21%			6.42 -21% 8.13		9.47	8.13	10.00 4
tack	12	Express		Splitter, side, one lane, blocked exit	9.00 -2%	9.23	9.47 +3%	6 9.00 -2%			9.00 -2% 9.23		9.00 -2%		
ack	12	Express	Running belt items → chest	Splitter, side, one lane, nonblocked exit	10.00 -9%	11.02	12.27 +11%	6 10.00 -9%			10.00 -9% 11.02		10.00 -9%		
tack	12	Express		Splitter, front/behind, one lane, blocked exit	9.00 -4%		9.47 +2%	9.00 -4%			9.00 -4% 9.33		9.37 -1%	9.42	
tack tack	12 12	Express		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	10.58 8.57 -17%	10.58	10.58 12.85 +24%	10.58			10.58 10.58		12.85	12.85	
tack	12	Express		Splitter, front/behind, both lanes, blocked exit	12.00 -1%		12.85 +6%	6 12.00 -1%			12 00 -1% 12 14		12.00	12.00	12.00
tack	12	Express	Queued belt items → chest		14.69	14.69	14.69								
ack	12	Express	Queued belt items $\rightarrow$ chest	Straight, side, far lane	16.00	16.00	16.00								
tack	12	Express	Queued belt items → chest		14.69	14.69	14.69								
tack tack	12	Express Express		Straight, side, sideloaded onto empty belt Straight, towards, one lane	14.69 -3% 12.85	15.15 12.85	15.65 +3%	0					-		
tack tack	12	Express		Straight, towards, one lane Straight, towards, both lanes	12.85	12.85	12.85								
tack	12	Express	Queued belt items → chest		12.00 -8%	13.01	13.58 +4%	6							
tack	12	Express	Queued belt items → chest		13.33 -2%	13.58	13.84 +2%	6							
tack	12	Express	Queued belt items → chest		10.74 -15%		16.36 +30%	6							
tack tack	12 12	Express		Underground, side, one lane Underground, side, both lanes	13.58 -2% 10.90 -2%	13.84	14.11 +29	6							
tack tack	12	Express		Underground, side, both lanes Underground, front, one lane	10.90 -2%		13.58 +3%	6							
tack	12	Express		Underground, behind, one lane	12.63	12.63	12.63								
tack	12	Express		Underground, front/behind, both lanes	13.58 -1%	13.67	13.84 +1%	6							
tack	12	Express		Underground, sideloaded onto empty belt	12.41 -9%		14.69 +8%	6							
tack	12	Express		Splitter, side, one lane, blocked exit Splitter, front/behind, one lane, blocked exit	13.84 -1% 12.63 -1%		14.11 +19 12.85 +19	6							
tack	12	Express		Splitter, side, both lanes, blocked exit	11.25	11.25	11.25	•							
tack	12	Express	Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit	13.58 -2%	13.84	14.11 +2%	6							
tack	12	Fast	Chest → belt	Non-splitter	10.90	10.90	10.90	10.90			10.90 10.90		10.90		
tack	12	Fast	Chest → belt	Splitter	10.90 -3%	11.25	11.42 +2%	6 10.90 -3%			10.90 -3% 11.25		10.90 -3%		
tack tack	12 12	Fast Fast	Running belt items → chest Running belt items → chest		10.58 -1% 11.25	10.72 11.25	11.25 +5% 11.25	6 10.58 -1%	10.74		10.58 -1% 10.74		10.58	10.58	10.58
tack	12	Fast	Running belt items → chest		10.58	10.58	10.58	10.58			10.58 10.58		10.58		
tack	12	Fast		Straight, side, sideloaded onto empty belt	7.82 -13%		10.58 +18%	6 7.82 -13%			7.82 -13% 9.00		7.82 -13%		
tack	12	Fast	Running belt items → chest		7.50 -23%		10.58 +8%	7.50 -23%			7.50 -23% 9.79		10.00 -3%	10.28	
Stack	12	Fast	Running belt items → chest		10.00 -3%		10.58 +3%	6 10.00 -3%			10.00 -3% 10.28		10.58	10.58	10.58
tack tack	12 12	Fast Fast	Running belt items → chest	Turn, both lanes Underground, side, one lane	6.42 -36% 10.00 -5%	9.96	15.00 +51% 11.25 +7%	6 6.42 -36%			6.42 -36% 9.96		8.57 -21%	10.90 10.58	12.85 +
tack	12	Fast		Underground, side, both lanes	5.80 -27%	7.92	11.25 +42%	6 5.80 -27%	7.93	11.25 ±42%	5.80 -27% 7.90		8.18 -1%	8.27	8.37
tack	12	Fast		Underground, front, one lane	10.00	10.00	10.00	10.00	10.00	10.00	10.00 10.00		10.00		
tack	12	Fast		Underground, behind, one lane	7.82 -15%	9.23	11.25 +22%	7.82 -15%			7.82 -15% 9.23		11.25	11.25	
tack tack	12	Fast Fast		Underground, front/behind, both lanes	13.84 -4% 7.82 -15%		15.00 +4%	6 13.84 -4%			13.84 -4% 14.43		13.84 -4%	14.40 9.23	15.00
tack	12	Fast		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	6.92 -2%		7.20 +2%	6 8 92 .2%			6 92 -2% 7.05		7.82 -15% 8.92 -2%	7.05	7.20
tack	12	Fast		Splitter, side, one lane, nonblocked exit	10.00 -4%		10.58 +1%	6 10.00 -4%			10.00 -4% 10.43		10.00 -3%	10.28	
tack	12	Fast	Running belt items → chest	Splitter, front/behind, one lane, blocked exit	6.66 -2%	6.79	6.92 +2%	6 6.66 -2%			6.66 -2% 6.79		6.66 -2%		
tack	12	Fast		Splitter, side, both lanes, blocked exit	10.00	10.00	10.00	10.00			10.00 10.00		10.00		
tack	12	Fast		Splitter, side, both lanes, nonblocked exit	6.66 -20%	8.37	10.58 +26%	6 6.66 -20%			6.66 -20% 8.37		10.00	10.00	10.00
tack tack	12 12	Fast Fast	Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit Straight, side, near lane	11.25 -2% 12.85	11.49 12.85	12.00 +4% 12.85	6 11.25 -2%			11.25 -2% 11.49		11.25	11.25	11.25
tack	12		Queued belt items → chest		12.63	12.63	12.63								
tack	12	Fast	Queued belt items → chest		11.80 -2%	12.10	12.20 +1%	6							
tack	12	Fast	Queued belt items $\rightarrow$ chest	Straight, side, sideloaded onto empty belt	11.61 -4%	12.10	12.63 +4%	6							
tack	12		Queued belt items → chest		11.07	11.07	11.07						-		
tack	12 12	Fast Fast	Queued belt items → chest Queued belt items → chest	Straight, towards, both lanes Turn, outer lane	11.07 10.58 -4%	11.07	11.07	6							
tack	12		Queued belt items → chest		11.07 -1%	11.07	11.61 +5%	6							
tack	12	Fast	Queued belt items → chest	Turn, both lanes	10.00 -11%		15.31 +36%	6							
tack	12	Fast		Underground, side, one lane	11.25 -1%		11.61 +2%	6							
tack tack	12	Fast Fast		Underground, side, both lanes	10.00	10.00	10.00								
tack tack	12 12	Fast		Underground, front, one lane Underground, behind, one lane	11.07 -1% 10.74 -1%		11.25 +1% 11.07 +2%	6							
tack	12	Fast		Underground, front/behind, both lanes	13.09 -7%		14.69 +4%	6					t		
tack	12	Fast	Queued belt items $\rightarrow$ chest	Underground, sideloaded onto empty belt	11.07 -2%		11.80 +4%	6							
tack	12	Fast		Splitter, side, one lane, blocked exit	11.25 -1%		11.42 +1%	6							
tack	12	Fast		Splitter, front/behind, one lane, blocked exit	10.90	10.90	10.90						1		
tack tack	12	Fast Fast		Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	10.43 12.85 -1%	10.43 12.97	10.43 13.09 +1%	6							
tack	12	Basic	Chest → belt	Non-splitter	6.79	6.79	6.79	6.79			6.79 6.79		6.79		
ack	12	Basic	Chest → belt	Splitter	7.20 -1%	7.24	7.34 +1%	6 7.20 -1%			7.20 -1% 7.24		7.20 -1%		
ack	12	Basic	Running belt items → chest		7.50	7.50	7.50	7.50			7.50 7.50		7.50		
ack ack	12 12	Basic Basic	Running belt items → chest		7.50 9.00	7.50 9.00	7.50 9.00	7.50			7.50 7.50		7.50		
ack	12	Basic	Running belt items → chest Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	6.42 -4%		6.92 +4%	6 6.42 -4%			6.42 -4% 6.66		6.42 -4%		
ack	12	Basic	Running belt items → chest		7.50	7.50	7.50	7.50			7.50 7.50		7.50		
ack	12	Basic	Running belt items → chest		6.66 -2%		6.92 +2%	6.66 -2%			6.66 -2% 6.79		6.66 -2%		6.92
tack	12	Basic	Running belt items → chest	Turn, both lanes	6.42 -26%	8.63	11.25 +30%	6.42 -26%			6.42 -26% 8.63		6.42 -24%	8.40	10.80
tack	12	Basic		Underground, side, one lane	6.92	6.92	6.92	6.92			6.92 6.92		6.92		
ack	12	Basic Basic		Underground, side, both lanes Underground, front, one lane	9.00 6.92	9.00 6.92	9.00 6.92	9.00			9.00 9.00		9.00		
ack	12	Basic		Underground, front, one lane Underground, behind, one lane	6.92	6.92	6.92	6.42			6.42 6.42		6.42		
tack	12	Basic		Underground, front/behind, both lanes	10.00 -5%		11.25 +7%	6 10.00 -5%			10.00 -5% 10.49		10.00 -5%	10.58	
tack	12	Basic		Underground, sideloaded onto empty belt	6.00 -5%		6.42 +2%	6 6.00 -5%			6.00 -5% 6.31		6.00 -5%	6.31	
tack	12	Basic	Running belt items → chest	Splitter, side, one lane, blocked exit	3.75	3.75	3.75	3.75			3.75 3.75		3.75		
tack	12	Basic		Splitter, side, one lane, nonblocked exit	6.42	6.42	6.42	6.42			6.42 6.42		6.42		
tack	12	Basic		Splitter, front/behind, one lane, blocked exit	3.75	3.75	3.75	3.75			3.75 3.75		3.75		
ack	12 12	Basic Basic		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	7.50 3.60 -42%	7.50 6.19	7.50 8.57 +38%	7.00	6.20	8.67 1000	7.50 7.50 3.60 -42% <b>6.20</b>		6.42	6.42	6.42
Stack	14			Splitter, front/behind, both lanes, blocked exit		7.50	7.50	7.50	7.50	7.50	7.50 7.50		7.50	3.42	3.42

Inserter Type	Stack size	Belt Type	Setup Move type	Belt tile type			all directions, a Mean [13]	Max [14]				ll belt phases [8] Max [19] [20]			belt phases [9] Max [24] [25]			ingle belt phase Max [29] [30]
Stack	12	Basic	Queued belt items → chest	Straight, side, near lane	7.50	•	7.50	7.50	•	1						1		
Stack Stack	12 12	Basic Basic	Queued belt items → chest Queued belt items → chest		7.50 9.64		7.50 9.64	7.50 9.64		-						-		
Stack	12	Basic		Straight, side, sideloaded onto empty belt	7.50		7.50	7.50										
Stack	12	Basic	Queued belt items → chest		7.50		7.50	7.50										
Stack Stack	12	Basic Basic	Queued belt items → chest Queued belt items → chest	Straight, towards, both lanes	7.50 7.50		7.50 7.50	7.50 7.50										
Stack	12	Basic	Queued belt items → chest		6.85	-2%	6.96	7.12	+2%									
Stack	12	Basic	Queued belt items → chest	Turn, both lanes	7.65	-17%	9.17	11.25	+23%									
Stack	12	Basic		Underground, side, one lane	7.05	-1%	7.09	7.20	+2%									
Stack Stack	12	Basic Basic		Underground, side, both lanes Underground, front, one lane	9.00 7.05	-2% -2%	9.23 7.20	9.47 7.34	+3%									
Stack	12	Basic	Queued belt items → chest	Underground, behind, one lane	7.20		7.20	7.20										
Stack	12	Basic		Underground, front/behind, both lanes	11.25	-2%	11.48	12.00	+5%									
Stack Stack	12 12	Basic Basic		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	6.99	-3% -2%	7.18 7.12	7.50 7.27	+4%									
Stack	12	Basic		Splitter, front/behind, one lane, blocked exit	7.02	-1%	7.07	7.12	+1%									
Stack	12	Basic		Splitter, side, both lanes, blocked exit	9.35		9.35	9.35										
Stack Fast	12	Basic	Queued belt items → chest Chest → chest	Splitter, front/behind, both lanes, blocked exit	11.25 6.92	-2%	11.52 6.92	11.80 6.92	+2%	6.92			6.92			6.02		
Fast	3	Express	Chest → belt	Non-splitter	6.42		6.42	6.42		6.42			6.42			6.42		
Fast	3	Express		Splitter	6.42		6.42	6.42		6.42			6.42			6.42		
Fast Fast	3	Express Express	Running belt items → chest Running belt items → chest		5.62 6.13		5.62 6.13	5.62 6.13		6.13			6.13			6.13		
Fast	3	Express	Running belt items → chest		5.62		5.62	5.62		5.62			5.62			5.62		
Fast	3	Express		Straight, side, sideloaded onto empty belt		-10%	5.00	5.62	+12%	4.50 -10%			4.50 -10%			4.50 -10%		
Fast Fast	3	Express Express	Running belt items → chest Running belt items → chest		5.62 5.00		5.62	5.62		5.62			5.62			5.62		
Fast	3	Express	Running belt items → chest Running belt items → chest		4.50	-11%	5.05	5.62	+11%	4.50 -11%			4.50 -11%			4.50 -10%	5.00	5.62 +12
Fast	3	Express	Running belt items → chest	Underground, side, one lane	5.62	-4%	5.86	6.13	+5%	5.62 -4%		6.13 +5%	5.62 -4%	5.86	6.13 ±59	5.62 -4%	5.86	6.13 ±5
Fast Fast	3	Express Express		Underground, side, both lanes Underground, front, one lane	4.09 5.19	-15%	4.84 5.19	5.62	+16%	4.09 -15%	4.83	5.62 ±16%	4.09 -15%	4.83	5.62 +169	4.50 -10%	5.00	5.62 +12
Fast Fast	3	Express		Underground, front, one lane Underground, behind, one lane	5.19		5.19	5.19		5.19			5.19			5.19		
Fast	3	Express	Running belt items → chest	Underground, front/behind, both lanes	4.50	-10%	5.00	5.19	+4%	4.50 -10%			4.50 -10%			5.19	5.19	
Fast	3	Express		Underground, sideloaded onto empty belt		-10%	4.18	4.50	+8%	3.75 -10%			3.75 -10%			3.75 -10%		
Fast Fast	3	Express Express		Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	6.42 4.50	-7%	6.42 4.82	6.42 5.19	+8%	6.42 4.50 -7%			6.42 4.50 -7%			6.42 4.50 -7%		
Fast	3	Express	Running belt items → chest	Splitter, front/behind, one lane, blocked exit	5.80	-2%	5.90	6.00	+2%	5.80 -2%			5.80 -2%			5.80 -2%		
Fast	3	Express	-	Splitter, side, both lanes, blocked exit	5.62	-6%	6.00	6.42	+7%	5.62 -6%			5.62 -6%			5.62	5.62	5.62
Fast Fast	3	Express Express		Splitter, side, both lanes, nonblocked exit Splitter, front/behind, both lanes, blocked exit	4.73 5.80	-9% -2%	5.21	5.62 6.00	+8%	4.73 -9% 5.80 -2°			4.73 -9% 5.80 -2°			5.62	5.62	
Fast	3	Express	Queued belt items → chest		6.20	-270	6.20	6.20	-270	5.00 -2%			J.GU -2%			3.00 -2%		
Fast	3	Express	Queued belt items → chest	Straight, side, far lane	6.66		6.66	6.66										
Fast Fast	3	Express Express			6.20	-3%	6.20 6.42	6.20	+4%							-		
Fast Fast	3	Express	Queued belt items → chest Queued belt items → chest	Straight, side, sideloaded onto empty belt Straight, towards, one lane	5.80	-3%	5.80	5.80	+4%									
Fast	3	Express	Queued belt items → chest	Straight, towards, both lanes	5.80		5.80	5.80										
Fast	3	Express	Queued belt items → chest		5.80	-7%	6.27	6.92										
Fast Fast	3	Express Express	Queued belt items → chest Queued belt items → chest		6.00 5.80	-3% -7%	6.20	6.42	+4%									
Fast	3	Express		Underground, side, one lane	6.20	-3%	6.42	6.66	+4%									
Fast	3	Express		Underground, side, both lanes	6.20	-2% -2%	6.31	6.42	+2%									
Fast Fast	3	Express Express		Underground, front, one lane Underground, behind, one lane	5.80 5.80	-2%	5.90	6.00 5.80	+2%									
Fast	3	Express		Underground, front/behind, both lanes	5.80	-1%	5.86	6.00	+2%									
Fast	3	Express		Underground, sideloaded onto empty belt	5.62	-7%	6.07	6.66	+10%									
Fast Fast	3	Express Express		Splitter, side, one lane, blocked exit Splitter, front/behind, one lane, blocked exit	6.42 5.80	-2%	6.42 5.90	6.42	+2%									
Fast	3	Express		Splitter, side, both lanes, blocked exit	6.42	-2.70	6.42	6.42	1270									
Fast	3	Express		Splitter, front/behind, both lanes, blocked exit		-2%	5.90	6.00	+2%									
Fast Fast	3	Fast Fast	Chest → belt Chest → belt	Non-splitter Splitter	6.00	-4%	6.00	6.00	+2%	6.00			6.00			6.00		
Fast	3	Fast	Running belt items → chest	- F	5.62	-470	5.62	5.62	-270	5.62			5.62			5.62		
Fast	3	Fast	Running belt items → chest		5.80	-2%	5.90	6.00	+2%	5.80 -2%			5.80 -2%			6.00	6.00	
Fast Fast	3	Fast Fast	Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	5.62 4.73	-9%	5.62	5.62 6.00	.150/	5.62			5.62			5.62 4.73 <b>-8%</b>	5.62	5.62 5.62 +9 <sup>4</sup>
Fast	3	Fast	Running belt items → chest		5.00	-2%	5.10		+4%	5.00 -2%			5.00 -2%			5.00 -3%	5.14	5.29 +39
Fast	3	Fast	Running belt items → chest	Turn, inner lane	5.00	-7%	5.37	5.62	+5%	5.00 -7%			5.00 -7%			5.62	5.62	
Fast	3	Fast	Running belt items → chest			-13%	5.19	6.00		4.50 -13%			4.50 -13%			5.00 -7%	5.37	5.62 +5
Fast Fast	3	Fast Fast		Underground, side, one lane Underground, side, both lanes	5.00 4.09	-13% -23%	5.76 5.33	6.42		5.00 -13% 4.09 -23%	5.34	6.42 +20%	5.00 -13% 4.09 -23%	5.34	6.42 +209	5.00 -14%	5.80 4.50	5.00 +11
Fast	3	Fast	Running belt items → chest	Underground, front, one lane	5.00		5.00	5.00		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Fast	3	Fast Fast		Underground, behind, one lane	6.00	440/	6.00 5.64	6.00	+6%	6.00			6.00			6.00	6.00 5.80	6.00 6.00 +3
Fast Fast	3	Fast		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	5.00 4.50	-11% -5%	5.64 4.73	6.00 5.00	+6%	5.00 -11% 4.50 -5%			5.00 -11% 4.50 -5%			5.62 -3% 4.50 -6%	5.80 4.80	5.00 +3°
Fast	3	Fast	Running belt items → chest	Splitter, side, one lane, blocked exit	6.42	270	6.42	6.42	3,0	6.42			6.42			6.42	6.42	6.42
Fast	3	Fast		Splitter, side, one lane, nonblocked exit	5.00	-5%	5.29	5.62	+6%	5.00 -5%	5.29	5.62 +6%	5.00 -5%	5.29	5.62 +69	5.00 -5%	5.29	5.62 +6
Fast Fast	3	Fast Fast		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	5.62 5.62	-7% -3%	6.07 5.80	6.42	+6%	5.62 <b>-8%</b> 5.62 -3%	6.10 5.80	6.42 <b>+5%</b> 6.00 +3%	5.62 <b>-8%</b> 5.62 -3%	6.10 5.80	6.42 +59	6.00	6.00	6.42 +7
Fast	3	Fast		Splitter, side, both lanes, nonblocked exit	4.73	-7%	5.07	5.62		4.73 -7%			4.73 -7%			5.00	5.00	5.00
Fast	3	Fast		Splitter, front/behind, both lanes, blocked exit		-7%	6.05	6.42	+6%	5.62 -8%	6.10	6.42 +5%	5.62 -8%	6.10	6.42 +59	5.62 -6%	6.00	6.42 <b>+7</b>
Fast Fast	3	Fast Fast	Queued belt items → chest Queued belt items → chest		6.20 6.42		6.20	6.20										
Fast	3	Fast	Queued belt items → chest		6.20		6.20	6.20										
Fast	3	Fast	Queued belt items → chest	Straight, side, sideloaded onto empty belt	6.20	-3%	6.42	6.66	+4%									
Fast Fast	3	Fast Fast	Queued belt items → chest Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	5.80 5.80		5.80 5.80	5.80		-								
Fast	3	Fast	Queued belt items → chest	Turn, outer lane	5.80	-6%	6.20	6.66	+7%									
Fast	3	Fast	Queued belt items → chest	Turn, inner lane	5.80	-4%	6.06	6.20	+2%									
Fast Fast	3	Fast Fast	Queued belt items → chest	Turn, both lanes Underground, side, one lane	5.80 6.20	-5% -1%	6.13 6.26	6.66	+9%	-						-		
Fast Fast	3	Fast		Underground, side, one lane Underground, side, both lanes	6.20	-1%	6.26	6.42	+3%									
Fast	3	Fast	Queued belt items → chest	Underground, front, one lane	5.80		5.80	5.80										
Fast	3	Fast		Underground, behind, one lane	5.80		5.80	5.80										
Fast Fast	3	Fast Fast		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	5.80 5.62	-6%	5.80 5.95	5.80 6.66	+12%									
Fast	3	Fast		Splitter, side, one lane, blocked exit	6.42	270	6.42	6.42	_,0									
Fast	3	Fast		Splitter, front/behind, one lane, blocked exit	5.80		5.80	5.80										
Fast Fast	3	Fast Fast		Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	6.42 5.80		6.42 5.80	6.42 5.80										
-ast -ast	3	Fast Basic		Non-splitter	5.80		5.80	5.80		5.29			5.29			5.29		
Fast	3	Basic	Chest → belt	Splitter	5.62	-8%	6.13	6.42	+5%	5.62 -8%			5.62 -8%			5.62 -8%		
Fast	3	Basic	Running belt items → chest		5.62		5.62	5.62		5.62			5.62			5.62		
Fast	3	Basic Basic	Running belt items → chest Running belt items → chest		6.13 5.62		6.13 5.62	6.13 5.62		5.62			5.62			5.62		
Fast				Straight, side, sideloaded onto empty belt	4.50	-12%	5.02	6.13	+20%	4.50 -12%			4.50 -12%			4.50 -10%	5.00	5.62 +12
Fast Fast	3	Basic	realiting beit items → chest															

Inserter		Belt	Setup				Il directions, all					l belt phases [8]						single belt phase
Type : Fast	Stack siz	Basic	Move type Running belt items → chest	Belt tile type Turn, both lanes	Min [11] 4.50	[12] -18%	Mean [13] 5.50	Max [14] 6.13		Min [16] [17] 4.50 -18%	Mean [18]	Max [19] [20]	Min [21] [22]	Mean [23]	Max [24] [25]	Min [26] [27] 5.00 -10%	Mean [28] 5.53	Max [29] [30] 6.00 +8%
Fast	3	Basic		Underground, side, one lane	5.62		5.62	5.62		5.62	5.62	5.62	5.62			5.62	5.62	5.62
Fast Fast	3	Basic Basic		Underground, side, both lanes Underground, front, one lane	5.00 5.62	-10%	5.56 5.62	5.65 5.62	+2%	5.00 -10%	5.57	5.65 +1% 5.62	5.00 -10%			5.62	5.62	5.62
Fast	3	Basic	Running belt items → chest	Underground, behind, one lane	4.50		4.50	4.50		4.50			4.50			4.50		
Fast Fast	3	Basic		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	4.50 3.75	-17% -12%	5.45 4.28	5.65 4.50	+4%	4.50 -17%			4.50 -17%			5.62	5.62	5.62
Fast	3	Basic		Splitter, side, one lane, blocked exit	3.75	-12/0	3.75	3.75	1370	3.75			3.75			3.75		
Fast Fast	3	Basic Basic		Splitter, side, one lane, nonblocked exit	4.50		4.50 3.75	4.50		4.50			4.50			4.50		
Fast	3	Basic		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	3.75 5.49	-2%	5.60	3.75 5.62		5.49 -2%			5.49 -2%			5.62	5.62	
Fast	3	Basic		Splitter, side, both lanes, nonblocked exit	3.21	-27%	4.38	5.00		3.21 -27%			3.21 -27%			4.50	4.50	4.50
Fast Fast	3	Basic Basic	Running belt items → chest Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit	5.62 6.20	-4%	5.85 6.20	5.93 6.20	+1%	5.62 -4%			5.62 -4%			5.90	5.90	5.91
Fast	3	Basic	Queued belt items → chest		6.42		6.42	6.42										
Fast	3	Basic	Queued belt items $\rightarrow$ chest		6.20		6.20	6.20										
Fast Fast	3	Basic Basic	Queued belt items → chest Queued belt items → chest	Straight, side, sideloaded onto empty belt Straight, towards, one lane	6.42 5.45	-2%	6.54 5.45	6.66 5.45	+2%									
Fast	3	Basic		Straight, towards, both lanes	5.45		5.45	5.45										
Fast	3	Basic	Queued belt items → chest Queued belt items → chest		5.45	-4%	5.68	6.00	+6%									
Fast Fast	3	Basic Basic	Queued belt items → chest	10.11	5.80 5.45	-6%	5.80 5.80	5.80 6.20	+7%									
Fast	3	Basic		Underground, side, one lane	6.00	-3%	6.20	6.42	+4%									
Fast Fast	3	Basic Basic		Underground, side, both lanes Underground, front, one lane	6.20 5.45		6.20 5.45	6.20 5.45										
Fast	3	Basic		Underground, behind, one lane	5.45		5.45	5.45										
Fast	3	Basic		Underground, front/behind, both lanes	5.45		5.45	5.45										
Fast Fast	3	Basic		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	5.62 6.42	-5% -2%	5.90 6.54	6.42	+9%									
Fast	3	Basic		Splitter, front/behind, one lane, blocked exit	5.62	-270	5.62	5.62	-270									
Fast	3	Basic		Splitter, side, both lanes, blocked exit	6.42		6.42	6.42										
Fast Long-handed	3	Basic	Queued belt items → chest Chest → chest	Splitter, front/behind, both lanes, blocked exit	5.62 3.52	-1%	5.62 3.56	5.62 3.60	+1%	3.52	3.52	3.52	3.60	3.60		3.52	3.52	3.52
Long-handed Long-handed	3	Express	Chest → chest Chest → belt	Non-splitter	3.39	-1%	3.42	3.46	+1%	3.39	3.39	3.39	3.46	3.46		3.39	3.39	3.39
Long-handed	3	Express	Chest → belt	Splitter	3.39	-1%	3.42	3.46	+1%	3.39	3.39	3.39	3.46	3.46		3.39	3.39	3.39
Long-handed Long-handed	3	Express	Running belt items → chest Running belt items → chest		3.21		3.21 3.21	3.21		3.21			3.21			3.21		
Long-handed	3	Express	Running belt items → chest	Straight, side, both lanes	3.21		3.21	3.21		3.21			3.21	3.21	3.21	3.21		3.21
Long-handed	3	Express	-	Straight, side, sideloaded onto empty belt	2.50	-10%	2.77	3.21	+16%	2.50 -10%			2.50 -10%	2.78	3.21 +15%	2.50 -9%	2.76	3.21 +169
Long-handed Long-handed	3	Express Express	Running belt items → chest Running belt items → chest	Straight, towards, one lane Straight, towards, both lanes	2.81		2.81	2.81		2.81			2.81			2.81		
Long-handed	3	Express	Running belt items → chest	Turn, outer lane	1.87	-18%	2.28	2.81	+23%	1.87 -18%			1.87 -18%			1.87 -17%	2.25	2.81 +259
Long-handed Long-handed	3	Express	Running belt items → chest	1000,000	2.64	-4% -16%	2.74	3.00 2.81	+9% +16%	2.64 -4%			2.64 -4%			2.64 -4% 2.04 <b>-13%</b>	2.74	3.00 +99 2.81 +209
Long-handed Long-handed	3	Express	Running belt items → chest Running belt items → chest	Underground, side, one lane	2.04	-16%	3.00	3.06	+16%	2.81 -6%			2.81 -7%	3.02	3.06 +1%	2.81 -7%	3.01	3.06 +29
Long-handed	3	Express	Running belt items → chest	Underground, side, both lanes	2.64	-8%	2.86	3.00	+5%	2.64 -8%	2.87		2.64 -8%	2.87		2.81 -3%	2.90	3.00 +39
Long-handed	3	Express		Underground, front, one lane Underground, behind, one lane	2.81		2.81	2.81		2.81			2.81			2.81		
Long-handed Long-handed	3	Express	-	Underground, front/behind, both lanes	2.81		2.81	2.81		2.81			2.81			2.81		
Long-handed	3	Express	Running belt items → chest	Underground, sideloaded onto empty belt	2.25	-9%	2.48	2.64	+6%	2.25 -9%			2.25 -9%			2.25 -9%	2.47	2.64 +79
Long-handed Long-handed	3	Express		Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	3.37 2.64	-1% -3%	3.41 2.72	3.46 2.81	+1%	3.37 -1%			3.37 -1%			3.37 -1%		
Long-handed	3	Express		Splitter, front/behind, one lane, blocked exit	3.05	-2%	3.10	3.15	+2%	3.05 -2%			3.05 -2%			3.05 -2%		
Long-handed	3	Express		Splitter, side, both lanes, blocked exit	3.46		3.46	3.46		3.46			3.46			3.46		
Long-handed Long-handed	3	Express		Splitter, side, both lanes, nonblocked exit Splitter, front/behind, both lanes, blocked exit	2.50 3.05	-7% -2%	2.68 3.10	2.81 3.15	+5%	2.50 -7%			2.50 -7%			2.81	2.81	
Long-handed	3	Express	Queued belt items → chest		3.39	-2%	3.45	3.46	1270	0.00 -270			3.00 -270			3.00 -270		
Long-handed	3	Express	Queued belt items → chest		3.33		3.33	3.33										
Long-handed Long-handed	3	Express	Queued belt items → chest Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	3.46	-2%	3.46 3.39	3.46										
Long-handed	3	Express			3.05		3.05	3.05										
Long-handed	3	Express	Queued belt items → chest Queued belt items → chest	Straight, towards, both lanes	3.05	-5%	3.05 3.21	3.05	+6%									
Long-handed Long-handed	3	Express	Queued belt items → chest		3.15	-4%	3.21	3.39	+4%									
Long-handed	3	Express	Queued belt items $\rightarrow$ chest		3.05	-6%	3.24	3.39	+5%									
Long-handed Long-handed	3	Express		Underground, side, one lane Underground, side, both lanes	3.33	-2%	3.41	3.46	+1%									
Long-handed	3	Express		Underground, front, one lane	3.05	-2%	3.10	3.15	+2%									
Long-handed	3	Express		Underground, behind, one lane	3.05	-2%	3.10	3.15	+2%									
Long-handed Long-handed	3	Express Express		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	3.05 2.95	-2% -9%	3.10 3.25	3.15	+2%									
Long-handed	3	Express	Queued belt items → chest	Splitter, side, one lane, blocked exit	3.46	3 70	3.46	3.46										
Long-handed	3	Express		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	3.05	-2%	3.10	3.15	+2%									
Long-handed Long-handed	3	Express		Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	3.46	-2%	3.46 3.10	3.46	+2%									
Long-handed	3	Fast	Chest → belt	Non-splitter	3.27	-1%	3.30	3.33	+1%	3.27	3.27	3.27	3.33	3.33		3.27	3.27	3.27
Long-handed	3	Fast	Chest → belt	Splitter Straight eide near lane	3.27	-3%	3.38	3.46	+2%	3.27 <b>-2%</b>	3.35	3.39 +1%	3.33 -2%	3.41	3.46 +1%	3.27 <b>-2%</b>	3.35	3.39 +19
Long-handed Long-handed	3	Fast Fast	Running belt items → chest Running belt items → chest		3.00	-2%	3.00 3.16	3.00	+2%	3.00	3.00	3.00 3.21 <b>+1%</b>	3.00	3.00	3.00	3.21	3.00	
Long-handed	3	Fast	Running belt items → chest	Straight, side, both lanes	3.00		3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	
Long-handed Long-handed	3	Fast Fast	Running belt items → chest Running belt items → chest	Straight, side, sideloaded onto empty belt	2.72	-8%	2.95 2.50	3.21 2.50	+9%	2.72 -8%			2.72 -8%			2.72 -8%		
Long-handed Long-handed	3	Fast		Straight, towards, one lane Straight, towards, both lanes	2.50		2.50	2.50		2.50			2.50			2.50		
Long-handed	3	Fast	Running belt items → chest	Turn, outer lane	2.50		2.68	3.00		2.50 -7%			2.50 -7%			2.50 -8%	2.72	3.00 +109
Long-handed Long-handed	3	Fast Fast	Running belt items → chest Running belt items → chest		2.81	-2% -13%	2.88	3.00	+4%	2.81 -2%			2.81 -2%			2.81 -3%	2.90 2.76	3.00 +39
Long-handed Long-handed	3	Fast		Underground, side, one lane	2.81	-11%	3.14	3.00	+11%	2.81 -10%	3.11	3.21 +3%	3.00 -5%	3.15		3.00 -5%	3.15	3.21 +29
Long-handed	3	Fast	Running belt items → chest	Underground, side, both lanes	2.36	-15%	2.79	3.00	+8%	2.36 -14%	2.75	3.00 +9%	2.64 -6%		3.00 +7%	2.64 -3%	2.72	2.81 +39
Long-handed Long-handed	3	Fast Fast		Underground, front, one lane Underground, behind, one lane	2.36	-8% -6%	2.57	2.81 3.00	+9%	2.36 -8%			2.36 -8%			2.36 -8%		
Long-handed	3	Fast	Running belt items → chest	Underground, front/behind, both lanes	2.50	-5%	2.62	2.81	+7%	2.50 -5%			2.50 -5%			2.50 -5%	2.64	2.81 +69
Long-handed	3	Fast		Underground, sideloaded onto empty belt	2.36	-11%	2.65	2.81	+6%	2.36 -11%	2.65		2.36 -11%	2.65		2.36 -10%	2.63	2.81 +79
Long-handed Long-handed	3	Fast Fast		Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	3.21 2.81	-5%	3.38 2.81	3.46 2.81	+2%	3.21 -5% 2.81	3.39 2.81		3.21 -5% 2.81	3.39 2.81		3.21 <b>-4%</b> 2.81	3.33 2.81	3.46 <b>+49</b>
Long-handed	3	Fast	Running belt items → chest	Splitter, front/behind, one lane, blocked exit	3.00	-2%	3.05	3.10	+2%	3.00 -2%			3.00 -2%			3.00 -2%		
Long-handed	3	Fast		Splitter, side, both lanes, blocked exit	3.46	-8%	3.46	3.46	+3%	3.46			3.46			3.46 2.81	3.46	
Long-handed Long-handed	3	Fast Fast		Splitter, side, both lanes, nonblocked exit Splitter, front/behind, both lanes, blocked exit	2.50 3.00	-8% -2%	2.72 3.05	2.81 3.10	+3%	3.00 -2%			3.00 -2%			3.00 -2%	2.81 3.05	
Long-handed	3	Fast	Queued belt items → chest	Straight, side, near lane	3.39		3.39	3.39										
Long-handed	3	Fast Fast	Queued belt items → chest Queued belt items → chest		3.39		3.39 3.39	3.39										
and banded	3	Fast		Straight, side, both lanes Straight, side, sideloaded onto empty belt	3.39	-2%	3.39	3.39										
Long-handed Long-handed		Fast		Straight, towards, one lane	3.00		3.00	3.00										
Long-handed Long-handed	3						3 00											
Long-handed Long-handed Long-handed	3	Fast	Queued belt items → chest	Straight, towards, both lanes	3.00	00/		3.00	.00/									
Long-handed Long-handed				Turn, outer lane	3.00 3.00 3.10	-6% -3%	3.20 3.18	3.00 3.39 3.27	+6%									

Inserter	Stack siz	Belt	Setup	Belt tile type			all directions, al Mean [13]					ll belt phases [8]			belt phases [9] Max [24] [25]			single belt phase [ Max [29] [30]
Type Long-handed	3	Fast	Move type Queued belt items → chest	Underground, side, both lanes	Min [11] 3.39	[12]	3.39	Max [14]   3.39	[15]	Min [16] [17]	mean [18]	Max [19] [20]	Min [21] [22]	Mean [23]	Max [24] [25]	Min [26] [27]	wean (28)	Max [29] [30]
Long-handed	3	Fast		Underground, front, one lane	3.00	-2%	3.05		+2%									
Long-handed Long-handed	3	Fast Fast		Underground, behind, one lane Underground, front/behind, both lanes	3.00	-2% -2%	3.05	3.10	+2%									
Long-handed	3	Fast	Queued belt items → chest	Underground, sideloaded onto empty belt	2.90	-10%	3.23	3.39	+5%									
Long-handed Long-handed	3	Fast Fast		Splitter, side, one lane, blocked exit Splitter, front/behind, one lane, blocked exit	3.46	-2%	3.46 3.05	3.46	+2%									
Long-handed	3	Fast		Splitter, iron/benind, one lane, blocked exit Splitter, side, both lanes, blocked exit	3.46	-2%	3.46	3.10	+2%									
Long-handed	3	Fast		Splitter, front/behind, both lanes, blocked exit	3.00	-2%	3.05		+2%									
Long-handed	3	Basic	Chest → belt	Non-splitter	3.05	-1%	3.07	3.10	+1%	3.05	3.05	3.05	3.10	3.10	3.10	3.05	3.05	3.05
Long-handed Long-handed	3	Basic Basic	Chest → belt Running belt items → chest	Splitter Straight side pear lane	3.15	-6% -3%	3.34	3.46	+4%	3.15 -5%	3.31	3.39 +2%	3.21 -5%	3.37	3.46 +3%	3.15 -5%	3.31	3.39 +2%
Long-handed	3	Basic	Running belt items → chest		3.21	0,0	3.21	3.21		3.21		3.21				3.21	3.21	3.21
Long-handed	3	Basic	Running belt items → chest		3.21		3.21	3.21		3.21		3.21				3.21		
Long-handed Long-handed	3	Basic Basic	Running belt items → chest Running belt items → chest	Straight, side, sideloaded onto empty belt Straight towards one lane	2.64	-9%	2.90 2.81	3.21 ÷	+11%	2.64 -9%		3.21 +11%				2.64 -9%		
Long-handed	3	Basic		Straight, towards, both lanes	2.81		2.81	2.81		2.81		2.81				2.81		
Long-handed	3	Basic	Running belt items → chest		2.81	-1%	2.83		+2%	2.81	2.82	2.88 +2%		2.82	2.88 +2%	2.81 -1%		2.88 +2%
Long-handed Long-handed	3	Basic Basic	Running belt items → chest Running belt items → chest		2.81	-6%	2.81	2.81 3.21 +	<b>-11%</b>	2.81		2.81				2.81		
Long-handed	3	Basic		Underground, side, one lane	2.81	-9%	3.10		+4%	2.81 -8%	3.07	3.21 +5%	2.81 -10%	3.11	3.21 +3%	2.81 -5%	2.95	3.21 +9%
Long-handed	3	Basic		Underground, side, both lanes	2.50	-7%	2.69	3.06 +		2.50 -7%		3.06 ±14%		2.69	3.06 ±14%	2.50 -5%	2.64	2.81 +6%
Long-handed Long-handed	3	Basic Basic		Underground, front, one lane Underground, behind, one lane	2.50	-8% -15%	2.71	3.10 +	+14%	2.50 -7% 2.50 -12%	2.70	3.10 +15% 3.00 +6%	2.50 -7% 2.50 -16%	2.70 2.96	3.10 +15%	2.50 -7% 2.50 -12%	2.70 2.85	2.93 +99
Long-handed	3	Basic		Underground, front/behind, both lanes		-10%	2.93	3.21 +		2.64 -9%	2.89	3.21 +11%	2.64 -10%	2.93	3.21 ±10%	2.81 -2%	2.87	3.07 +7%
Long-handed	3	Basic		Underground, sideloaded onto empty belt	2.50	-3%	2.57	2.81	+9%	2.50 -3%		2.81 +9%				2.50 -3%		
Long-handed	3	Basic		Splitter, side, one lane, blocked exit	3.21		3.21	3.21		3.21		3.21				3.21		
Long-handed Long-handed	3	Basic Basic		Splitter, side, one lane, nonblocked exit Splitter, front/behind, one lane, blocked exit	2.64 3.00	-3% -2%	2.72 3.06		+3%	3.00 -2%		2.81 ±3% 3.13 ±2%				2.64 -3% 3.00 -2%		
Long-handed	3	Basic	Running belt items → chest	Splitter, side, both lanes, blocked exit	3.01	-1%	3.05		+1%	3.01 -1%		3.09 +1%				3.05		3.05
Long-handed	3	Basic		Splitter, side, both lanes, nonblocked exit	2.25	-13%	2.58		+9%	2.32 -10%	2.59	2.81 +8%	2.32 -10%	2.59	2.81 +8%	2.64	2.64	2.64
Long-handed Long-handed	3	Basic Basic	Running belt items → chest Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit Straight, side, near lane	2.90	-2%	2.97 3.39	3.00	+1%	2.90 -2%		3.00 +1%				3.00	3.00	
Long-handed	3	Basic	Queued belt items → chest		3.39		3.39	3.39										
Long-handed	3	Basic	Queued belt items → chest	*	3.33		3.33	3.33										
Long-handed Long-handed	3	Basic	Queued belt items → chest Queued belt items → chest	Straight, side, sideloaded onto empty belt Straight towards one lane	3.33	-2%	3.39	3.46 2.90	+2%									
Long-handed	3	Basic		Straight, towards, one lane Straight, towards, both lanes	2.90		2.90	2.90										
Long-handed	3	Basic	Queued belt items $\rightarrow$ chest	Turn, outer lane	2.95	-4%	3.07	3.21	+5%									
Long-handed	3	Basic Basic		Turn, inner lane Turn, both lanes	3.10	-1% -14%	3.13	3.15 3.27	+1% +8%									
Long-handed Long-handed	3	Basic		Turn, both lanes Underground, side, one lane	2.60 3.15	-14% -4%	3.04	-	+8%									
Long-handed	3	Basic	Queued belt items $\rightarrow$ chest	Underground, side, both lanes	2.90	-6%	3.10	3.33	+7%									
Long-handed	3	Basic		Underground, front, one lane	2.90	-2%	2.95		+2%									
Long-handed Long-handed	3	Basic		Underground, behind, one lane	2.90	-2% -2%	2.95 2.95		+2%									
Long-handed	3	Basic		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	2.95	-9%	3.25	3.46	+6%									
Long-handed	3	Basic		Splitter, side, one lane, blocked exit	3.39	-1%	3.42	3.46	+1%									
Long-handed	3	Basic		Splitter, front/behind, one lane, blocked exit	2.95	-2%	3.00	3.05	+2%									
Long-handed Long-handed	3	Basic		Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	3.46 2.95	-2%	3.46	3.46	+2%									
Basic	3	1	Chest → chest	, , , , , , , , , , , , , , , , , , , ,	2.50		2.50	2.50		2.50		2.50				2.50		
Basic	3	Express	Chest → belt	Non-splitter	2.43		2.43	2.43		2.43		2.43				2.43		
Basic Basic	3	Express	Chest → belt Running belt items → chest	Splitter Straight eide pear lane	2.43		2.43	2.43		2.43		2.43				2.43		
Basic	3	Express	Running belt items → chest		2.04	-3%	2.11	2.12		2.11	2.12	2.12	2.11	2.12		2.11		2.11
Basic	3	Express	Running belt items → chest		2.14		2.14	2.14		2.14		2.14				2.14		
Basic Basic	3	Express		Straight, side, sideloaded onto empty belt	2.04	-5% -3%	2.14 1.45	2.25	+5%	2.04 -5%		2.25 +5%				2.04 -5%	2.14	2.25 ±5% 1.40
Basic	3	Express	Running belt items → chest Running belt items → chest		1.40 [37 1.95	-3%	2.00	2.04	+2%	1.95 -3%		2.04 +41%				1.95 -3%	1.40	2.04 +2%
Basic	3	Express	Running belt items → chest		1.40 [38	-17%	1.69	2.04 +	-21%	1.40 -17%		2.04 +21%				1.40 -15%	1.64	2.04 +24%
Basic	3	Express		Underground, side, one lane	2.04	-6%	2.16		+4%	2.04 -6%		2.25 +4%				2.04 -6%		
Basic Basic	3	Express		Underground, side, both lanes Underground, front, one lane	1.87	-8% -14%	2.04 1.86	2.25 +		1.60 -14%	1.85	2.25 +10%		1.85	2.25 +10%	2.04	2.04	
Basic	3	Express		Underground, behind, one lane	2.04		2.04	2.04		2.04		2.04			2.04	2.04		
Basic	3	Express		Underground, front/behind, both lanes	1.73	-15%	2.03	2.04		1.73 -15%		2.04				2.04	2.04	
Basic Basic	3	Express		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	1.73	-4% -1%	1.80	2.04 +	+2%	1.73 -4%		2.04 +13%				2.50 4%		
Basic	3	Express		Splitter, side, one lane, nonblocked exit	2.04	-170	2.04	2.04	1270	2.04		2.04				2.04		
Basic	3	Express	_	Splitter, front/behind, one lane, blocked exit	2.25	-2%	2.30	2.36	+3%	2.25 -2%		2.36 +3%				2.25 -2%		
Basic Basic	3	Express		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	2.57	-3%	2.57 1.92	2.57	+6%	2.57		2.57				2.57	2.57	
Basic Basic	3	Express		Splitter, side, both lanes, nonblocked exit Splitter, front/behind, both lanes, blocked exit	2.25	-3%	2.30		+6%	2.25 -2%		2.36 +3%				2.25 -2%	2.04	
Basic	3	Express	Queued belt items → chest	Straight, side, near lane	2.40		2.40	2.40										
Basic	3	Express			2.36		2.36	2.36										
Basic Basic	3	Express		Straight, side, both lanes Straight, side, sideloaded onto empty belt	2.40	-1%	2.40	2.40										
Basic	3	Express	Queued belt items $\rightarrow$ chest	Straight, towards, one lane	2.25		2.25	2.25										
Basic	3	Express		Straight, towards, both lanes	2.25		2.25	2.25										
Basic Basic	3	Express			2.22	-6% -4%	2.36 2.43		+6% +3%									
Basic	3	Express			2.22	-7%	2.40		+4%									
Basic	3	Express		Underground, side, one lane	2.36	-4%	2.45		+5%									
Basic Basic	3	Express		Underground, side, both lanes Underground, front, one lane	2.40 2.25	-3% -2%	2.48		+4%									
Basic	3	Express		Underground, behind, one lane	2.25	-70	2.25	2.25	- 70									
Basic	3	Express	Queued belt items $\rightarrow$ chest	Underground, front/behind, both lanes	2.25	-1%	2.28	2.36	+4%									
Basic Basic	3	Express		Underground, sideloaded onto empty belt Splitter side one lane blocked exit	2.14	-8% -1%	2.33		+6%									
Basic	3	Express		Splitter, front/behind, one lane, blocked exit	2.25	-1%	2.53		+2%									
Basic	3	Express		Splitter, side, both lanes, blocked exit	2.57		2.57	2.57										
Basic	3	Express		Splitter, front/behind, both lanes, blocked exit		-2%	2.30		+3%	2.00		2.00				2.00		
Basic Basic	3	Fast Fast	Chest → belt Chest → belt	Non-splitter Splitter	2.36 2.36	-2%	2.36	2.36	+1%	2.36 -2%		2.43 +1%				2.36 -2%		
Basic	3	Fast	Running belt items → chest	Straight, side, near lane	2.14	-2%	2.19	2.25	+3%	2.14 -2%		2.25 +3%				2.25	2.25	
Basic	3	Fast	Running belt items → chest		2.14	-4%	2.24	2.25	. 20/	2.25	2.25	2.25	2.25	2.25		2.25	2.25	
Basic Basic	3	Fast Fast	Running belt items → chest Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	2.14	-2% -3%	2.19		+3%	2.14 -2%		2.25 +3%				2.25	2.25	2.25 2.14 +2%
Basic	3	Fast	Running belt items → chest			-10%	2.03	2.25		1.83 -10%		2.25 +11%				1.83 -7%	1.97	2.14 +9%
Basic	3	Fast	Running belt items → chest		2.04	-5%	2.14	2.25		2.04 -5%		2.25 +5%				2.04 -5%	2.14	2.25 +5%
Basic	3	Fast Fast	Running belt items → chest	Turn, both lanes Underground, side, one lane	1.60 2.14	-17% -6%	1.92	2.25 +	+4%	1.60 -17%		2.25 +17%				1.60 -15%	1.88	2.14 +14%
	3	Fast		Underground, side, one lane Underground, side, both lanes	1.87	-6% -9%	2.27	2.36		1.87 -9%		2.25 +10%				1.87 -8%	2.04	
Basic Basic				Underground, front, one lane	2.14		2.14	2.14		2.14		2.14				2.14	2.14	
Basic Basic	3	Fast																
Basic Basic Basic	3	Fast	Running belt items → chest	Underground, behind, one lane	2.14	401	2.14	2.14	.000	2.14		2.14				2.14	2.14	2.14
Basic Basic			Running belt items $\rightarrow$ chest Running belt items $\rightarrow$ chest	Underground, behind, one lane Underground, front/behind, both lanes Underground, sideloaded onto empty belt	2.14 1.87 1.87	-1% -7%	2.14 1.89 2.02	2.04	+8% +6%	2.14 1.87 -1% 1.87 -7%		2.14 2.04 ±8% 2.14 ±8%				2.14 1.87 -4% 1.95 -3%	2.14 1.95 2.02	2.14 2.04 +5% 2.04 +1%

Inserter Type	Stack size		Setup Move type Belt tile type	Min [11	[12]	all directions, a Mean [13]	Max [14]	[15]	Min [16] [17]		III belt phases [8] Max [19] [20]			Max [24] [25]	Min [26] [27]		Max [29] [30]
Basic Basic	3	Fast Fast	Running belt items → chest   Splitter, side, one lane, nonblocked exit   Running belt items → chest   Splitter, front/behind, one lane, blocked exit   Splitter, front/behind, one lane, blocked exit   Splitter, front/behind, one lane, blocked exit   Splitter, side, one lane, nonblocked	2.04 xit 2.22		2.14		+5%	2.04 -5%			2.04 -5%			2.04 -5%		
Basic	3	Fast	Running belt items → chest Splitter, side, both lanes, blocked exit	2.50		2.51	2.53	+1%	2.50			2.50			2.50	2.50	2.50
Basic	3	Fast	Running belt items → chest Splitter, side, both lanes, nonblocked ex	2.04		2.15	2.25	+5%	2.04 -5%			2.04 -5%			2.25	2.25	
Basic Basic	3	Fast Fast	Running belt items → chest   Splitter, front/behind, both lanes, blocked   Queued belt items → chest   Straight, side, near lane	exit 2.22 2.43		2.27	2.33	+3%	2.22 -2%			2.22 -2%			2.22 -2%		
Basic	3	Fast	Queued belt items → chest Straight, side, far lane	2.40		2.42	2.43										
Basic Basic	3	Fast Fast	Queued belt items chest Straight, side, both lanes	2.43 t 2.33		2.43	2.43	+2%									
Basic	3	Fast	Queued belt items → chest Straight, side, sideloaded onto empty be Queued belt items → chest Straight, towards, one lane	2.33		2.22	2.40	TZ 70									
Basic	3	Fast	Queued belt items → chest Straight, towards, both lanes	2.22		2.22	2.22										
Basic Basic	3	Fast Fast	Queued belt items → chest Queued belt items → chest Turn, outer lane Turn, inner lane	2.19		2.35	2.53 2.46	+8%									
Basic	3	Fast	Queued belt items → chest Turn, inner lane  Queued belt items → chest Turn, both lanes	2.19		2.40	2.53	+7%									
Basic	3	Fast	Queued belt items → chest Underground, side, one lane	2.40		2.46	2.53	+3%									
Basic Basic	3	Fast Fast	Queued belt items — chest Underground, side, both lanes Queued belt items — chest Underground, front, one lane	2.43		2.48	2.53	+2%									
Basic	3	Fast	Queued belt items → chest Underground, front, one lane  Queued belt items → chest Underground, behind, one lane	2.22		2.22	2.22	T376									
Basic	3	Fast	Queued belt items → chest Underground, front/behind, both lanes	2.22		2.25	2.33	+4%									
Basic Basic	3	Fast Fast	Queued belt items → chest Queued belt items → chest Queued belt items → chest Splitter, side, one lane, blocked exit	t 2.11 2.46		2.28	2.40	+5%									
Basic	3	Fast	Queued belt items → chest Splitter, front/behind, one lane, blocked			2.27	2.33	+3%									
Basic	3	Fast	Queued belt items → chest Splitter, side, both lanes, blocked exit	2.53		2.53	2.53										
Basic Basic	3	Fast Basic	Queued belt items → chest Splitter, front/behind, both lanes, blocked Chest → belt Non-splitter	exit 2.22 2.25		2.27 2.25	2.33	+3%	2.25			2.25			2.25		
Basic	3	Basic	Chest → belt Splitter	2.30	-3%	2.38	2.43	+2%	2.30 -3%			2.30 -3%			2.30 -3%		
Basic	3	Basic	Running belt items → chest Straight, side, near lane	2.25		2.25	2.25		2.25			2.25			2.25		
Basic Basic	3	Basic Basic	Running belt items → chest Straight, side, far lane Running belt items → chest Straight, side, both lanes	2.32		2.32	2.32	+4%	2.32			2.32			2.32	2.25	2.25
Basic	3	Basic	Running belt items chest Straight, side, sideloaded onto empty be	1.73	-12%	1.97	2.25		1.73 -12%			1.73 -12%			1.73 -11%		2.25 +15
Basic	3	Basic	Running belt items → chest Turn, outer lane	2.04		2.04	2.04		2.04			2.04			2.04	2.04	2.04
Basic Basic	3	Basic Basic	Running belt items → chest Running belt items → chest Turn, inner lane Turn, both lanes	2.25 1.87		2.25 1.98	2.25	+3%	2.25 1.87 -6%			2.25 1.87 -6%			2.25 1.87 - <b>7%</b>	2.25	2.25
Basic	3	Basic	Running belt items → chest Underground, side, one lane	2.04	-6%	2.16	2.25	+4%	2.04 -6%			2.04 -6%	2.16	2.25 ÷4%	2.04 -6%	2.16	
Basic	3	Basic	Running belt items → chest Underground, side, both lanes	1.73		1.93	2.50	+30%	1.73 -10%			1.73 -10%	1.92	2.50 +30%	1.73 -4%	1.80	1.87 +4
Basic Basic	3	Basic Basic	Running belt items → chest Underground, front, one lane Running belt items → chest Underground, behind, one lane	1.87		2.14 1.87	2.14 1.87		1.87			1.87			1.87		
Basic	3	Basic	Running belt items → chest Underground, front/behind, both lanes	1.87	-8%	2.04	2.25		1.87 -9%	2.05		1.87 -9%	2.05		1.87	1.87	1.87
Basic	3	Basic	Running belt items → chest Underground, sideloaded onto empty be			1.90		+7%	1.73 -9%			1.73 -9%			1.73 -8%	1.89	2.04 +8
Basic Basic	3	Basic Basic	Running belt items → chest   Splitter, side, one lane, blocked exit   Running belt items → chest   Splitter, side, one lane, nonblocked exit	2.36		2.43	2.50	+3%	2.36 -3%			2.36 -3%			2.36 -3%		
Basic	3	Basic	Running belt items → chest Splitter, front/behind, one lane, blocked	xit 2.16	-3%	2.23	2.30	+3%	2.16 -3%			2.16 -3%			2.16 -3%		
Basic	3	Basic	Running belt items → chest Splitter, side, both lanes, blocked exit	2.50		2.50	2.50		2.50			2.50			2.50	2.50	
Basic Basic	3	Basic Basic	Running belt items chest Splitter, side, both lanes, nonblocked exi Running belt items chest Splitter, front/behind, both lanes, blocked	2.04 exit 2.16		2.13	2.25	+6%	2.04 -4%			2.04 -4%			2.25	2.25	
Basic	3	Basic	Queued belt items → chest Straight, side, near lane	2.40		2.40	2.40										
Basic	3	Basic	Queued belt items → chest Straight, side, far lane	2.43		2.43	2.43										
Basic Basic	3	Basic Basic	Queued belt items chest Straight, side, both lanes  Queued belt items chest Straight, side, sideloaded onto empty be	2.40		2.40	2.40	+3%									
Basic	3	Basic	Queued belt items → chest Straight, side, sideloaded onto empty be	2.16		2.17	2.19	+1%									
Basic	3	Basic	Queued belt items → chest Straight, towards, both lanes	2.16		2.17	2.19	+1%									
Basic Basic	3	Basic Basic	Queued belt items → chest Queued belt items → chest Turn, outer lane Turn, inner lane	2.16		2.35	2.53 2.36	+8%									
Basic	3	Basic	Queued belt items → chest Turn, both lanes	2.16		2.33	2.53	+9%									
Basic	3	Basic	Queued belt items → chest Underground, side, one lane	2.36		2.40	2.43	+1%									
Basic Basic	3	Basic Basic	Queued belt items → chest Underground, side, both lanes  Queued belt items → chest Underground, front, one lane	2.40		2.40	2.40	+3%									
Basic	3	Basic	Queued belt items → chest Underground, behind, one lane	2.16		2.16	2.16	-0,0									
Basic	3	Basic	Queued belt items → chest Underground, front/behind, both lanes	2.16		2.21	2.30	+4%									
Basic Basic	3	Basic Basic	Queued belt items → chest  Queued belt items → chest  Splitter, side, one lane, blocked exit	t 2.09		2.27	2.43	+7%									
Basic	3	Basic	Queued belt items → chest Splitter, front/behind, one lane, blocked			2.23		+3%									
Basic	3	Basic	Queued belt items → chest Splitter, side, both lanes, blocked exit	2.50		2.50	2.50										
Basic Burner	3	Basic	Queued belt items → chest Splitter, front/behind, both lanes, blocked Chest → chest	exit 2.16		2.23 1.79	2.30 1.80	+3%	1.78	1.78	1.78	1.80	1.80		1.78	1.78	1.78
Burner	3	Express	Chest → belt Non-splitter	1.74		1.75	1.76	+1%	1.74	1.74	1.74	1.76	1.76		1.74	1.74	1.74
Burner	3	Express	Chest → belt Splitter	1.74		1.75		+1%	1.74	1.74	1.74	1.76	1.76		1.74	1.74	1.74
Burner Burner	3	Express Express	Running belt items → chest Running belt items → chest Straight, side, near lane Straight, side, far lane	1.36		1.36	1.36		1.36			1.36			1.36		
Burner	3		Running belt items → chest Straight, side, both lanes	1.25		1.25	1.25		1.25			1.25			1.25		
Burner	3	Express	Running belt items → chest Straight, side, sideloaded onto empty be			1.50	1.60	+7%	1.40 -7%			1.40 -7%			1.40 -7%		
Burner Burner	3	Express Express	Running belt items → chest Running belt items → chest Turn, outer lane Turn, inner lane	1.32		0.90	0.97 1.50	+8% +7%	0.83 -8% 1.32 -6%			0.83 -8% 1.32 -6%			0.83 -8% 1.32 -8%		
Burner	3	Express	Running belt items → chest   Turn, limer lane   Turn, both lanes   Tu	0.83 [3		1.13	1.46		0.83 -27%			0.83 -27%			0.83 -27%		
Burner	3	Express	Running belt items → chest Underground, side, one lane	1.32		1.48		+8%	1.32 -11%			1.32 -11%			1.32 -13%		1.60 +6
Burner Burner	3	Express	Running belt items → chest Underground, side, both lanes Running belt items → chest Underground, front, one lane	1.36		1.48	1.60	+8%	1.36 -8%			1.36 -8%			1.45 -5%	1.52	1.60 +5
Burner	3	Express	Running belt items → chest Underground, behind, one lane	1.07		1.07	1.07		1.07			1.07			1.07		
Burner	3	Express	Running belt items → chest Underground, front/behind, both lanes	1.07		1.07	1.07		1.07			1.07			1.07		
Burner Burner	3	Express Express	Running belt items → chest Underground, sideloaded onto empty be Running belt items → chest Splitter, side, one lane, blocked exit	t 1.25		1.28	1.40	+9% +2%	1.25 -2%			1.25 -2% 1.81 -2%			1.25 -2%		
Burner	3	Express	Running belt items → chest Splitter, side, one lane, blocked exit	1.40		1.40	1.40	_ /3	1.40			1.40			1.40		
Burner	3	Express	Running belt items → chest Splitter, front/behind, one lane, blocked			1.65	1.71	+4%	1.60 -3%			1.60 -3%			1.60 -3%		
Burner Burner	3	Express Express	Running belt items → chest   Splitter, side, both lanes, blocked exit   Running belt items → chest   Splitter, side, both lanes, nonblocked exit	1.87		1.87	1.87	+1%	1.87			1.87			1.87	1.87	
Burner	3	Express	Running belt items → chest Splitter, front/behind, both lanes, blocked			1.65	1.71	+4%	1.60 -3%			1.60 -3%			1.60 -3%	1.65	
Burner	3	Express	Queued belt items → chest Straight, side, near lane	1.74		1.76	1.76										
Burner Burner	3	Express Express	Queued belt items → chest Straight, side, far lane Queued belt items → chest Straight, side, both lanes	1.73		1.73	1.73										
Burner	3	Express	Queued belt items → chest Straight, side, sideloaded onto empty be			1.71	1.73	+1%									
Burner	3	Express	Queued belt items → chest Straight, towards, one lane	1.62		1.62	1.62										
Burner Burner	3	Express Express	Queued belt items chest Straight, towards, both lanes  Queued belt items chest Turn, outer lane	1.62		1.62		+6%									
Burner	3	Express	Queued belt items → chest Turn, inner lane	1.66	-5%	1.74	1.83	+5%									
Burner	3	Express	Queued belt items → chest Turn, both lanes	1.57		1.72	1.83	+6%									
Burner Burner	3	Express Express	Queued belt items → chest  Queued belt items → chest  Underground, side, one lane  Underground, side, both lanes	1.73		1.79	1.87	+4%									
Burner	3	Express	Queued belt items → chest Underground, front, one lane	1.62	-2%	1.66	1.71	+3%									
Burner	3	Express	Queued belt items → chest Underground, behind, one lane	1.60		1.60	1.60										
Burner Burner	3	Express Express	Queued belt items → chest Underground, front/behind, both lanes Queued belt items → chest Underground, sideloaded onto empty be	1.60 t 1.53		1.64	1.71	+4%									
Burner	3	Express	Queued belt items → chest Splitter, side, one lane, blocked exit	1.81		1.84	1.87	+2%									
Burner	3	Express	Queued belt items → chest Splitter, front/behind, one lane, blocked	xit 1.60	-3%	1.65	1.71	+4%									
	3	Express	Queued belt items → chest Splitter, side, both lanes, blocked exit	1.87 exit 1.60		1.87	1.87	+4%									
Burner		Express	Queued helt items chest   Splitter front/bahind hoth lance blocker														
	3	Express Fast	Queued belt items → chest Splitter, front/behind, both lanes, blocked Chest → belt Non-splitter	1.71	-1%	1.72	1.73	+1%	1.71	1.71	1.71	1.73	1.73		1.71	1.71	1.71

Inserter Type	Stack size	Belt Type	Setup Move type	Belt tile type	Items/se Min [11]		all directions, a Mean [13]	Max [14]		Dito, north→so Min [16] [17]		ll belt phases [8] Max [19] [20]	Dito, west→ea Min [21] [22]		belt phases [9] Max [24] [25]	Dito, north Min [26] [			ingle belt phase [ Max [29] [30]
Burner Burner	3	Fast Fast	Running belt items → chest Running belt items → chest		1.57 1.45	-1%	1.59 1.45	1.60	+1%	1.57 -1%			1.57 -1%			1.57		1.57	1.57
Burner	3	Fast		Straight, side, both lanes Straight, side, sideloaded onto empty belt	1.50	-2%	1.43	1.55	+1%	1.45			1.50 -2%			1.50	-1%	1.52	1.55 +2%
Burner	3	Fast	Running belt items → chest		1.28	-10%	1.42	1.60		1.28 -10%			1.28 -10%			1.28 -			
Burner Burner	3	Fast Fast	Running belt items → chest Running belt items → chest		1.50	-4% -12%	1.56	1.60		1.50 -4%			1.50 -4%			1.50	-3% 14%	1.55	1.60 +3%
Burner	3	Fast	Running belt items → chest	Underground, side, one lane	1.50	-7%	1.62	1.73		1.50 -7%			1.50 -7%			1.50	-6%	1.60	1.73 +8%
Burner Burner	3	Fast Fast	Running belt items → chest Running belt items → chest	Underground, side, both lanes	1.36 1.55	-7% -1%	1.46	1.66		1.36 -7%			1.36 -7%			1.45		1.45 1.55	1.45
Burner	3	Fast	-	Underground, behind, one lane	1.60	-170	1.60	1.60	727	1.60			1.60			1.60		1.60	1.60
Burner	3	Fast		Underground, front/behind, both lanes	1.40		1.40	1.40		1.40			1.40			1.40			
Burner Burner	3	Fast Fast		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	1.40	-6% -1%	1.49	1.55	+4%	1.40 -6%			1.40 -6%			1.45	-4%	1.51	1.55 +3%
Burner	3	Fast		Splitter, side, one lane, nonblocked exit	1.60	-1%	1.62	1.66	+2%	1.60 -1%			1.60 -1%			1.60		1.60	1.60
Burner	3	Fast		Splitter, front/behind, one lane, blocked exit	1.62	-2%	1.66	1.71	+3%	1.62 -2%			1.62 -2%			1.62			
Burner	3	Fast Fast		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	1.85	-9%	1.85	1.85	+8%	1.85			1.85			1.60		1.60	1.85
Burner	3	Fast		Splitter, front/behind, both lanes, blocked exit	1.62	-2%	1.66	1.71	+3%	1.62 -2%			1.62 -2%			1.62		1.66	1.71 +3%
Burner	3	Fast	Queued belt items → chest		1.73	-1%	1.74	1.74											
Burner Burner	3	Fast Fast	Queued belt items → chest Queued belt items → chest		1.74	-1%	1.74	1.74											
Burner	3	Fast		Straight, side, sideloaded onto empty belt	1.65	-3%	1.70	1.74	+2%	6									
Burner Burner	3	Fast Fast	Queued belt items → chest Queued belt items → chest		1.63		1.63	1.63											
Burner	3	Fast	Queued belt items → chest Queued belt items → chest		1.63	-6%	1.63	1.63	+6%	6									
Burner	3	Fast	Queued belt items → chest	Turn, inner lane	1.68	-3%	1.74	1.80		6									
Burner	3	Fast	Queued belt items → chest		1.60	-7% -3%	1.72	1.80		6									
Burner Burner	3	Fast Fast	Queued belt items → chest Queued belt items → chest	Underground, side, one lane Underground, side, both lanes	1.73	-3%	1.78	1.85		6									
Burner	3	Fast	Queued belt items → chest	Underground, front, one lane	1.62	-2%	1.66	1.71		6									
Burner Burner	3	Fast Fast		Underground, behind, one lane Underground, front/behind, both lanes	1.62	-2%	1.62 1.65	1.62	+4%							-			
Burner	3	Fast		Underground, rron/benind, both lanes Underground, sideloaded onto empty belt	1.52	-2%	1.65	1.74		6									
Burner	3	Fast		Splitter, side, one lane, blocked exit	1.80	-1%	1.82	1.85	+2%	6									
Burner	3	Fast Fast		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	1.62	-2%	1.66	1.71	+3%							-			
Burner	3	Fast		Splitter, front/behind, both lanes, blocked exit	1.62	-2%	1.66	1.71	+3%	6									
Burner	3	Basic		Non-splitter	1.65		1.65	1.66		1.65	1.65	1.65	1.66	1.66	1.66	1.65	001	1.65	1.65
Burner	3	Basic Basic	Chest → belt Running belt items → chest	Splitter Straight, side, near lane	1.68	-3% -7%	1.73	1.76		1.68 -2% 1.50	1.72	1.74 +1%	1.69 -3%	1.74	1.76 +1%	1.68	-2%	1.72	1.74 +1%
Burner	3	Basic	Running belt items → chest	Straight, side, far lane	1.50	-2%	1.53	1.60	+5%	1.50 -2%	1.53		1.50 -2%	1.53		1.60		1.60	
Burner Burner	3	Basic Basic	Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty helt	1.37	-1% -3%	1.39 1.55	1.50	+8%	1.37 -1%			1.37 -1%			1.50		1.50	
Burner	3	Basic	Running belt items → chest		1.32	-3%	1.37	1.43		1.32 -4%			1.32 -4%			1.32			
Burner	3	Basic	Running belt items → chest	Turn, inner lane	1.60		1.60	1.60		1.60			1.60			1.60			
Burner	3	Basic Basic	Running belt items → chest		1.28	-9%	1.40	1.50	+7%	1.28 -9%			1.28 -9%			1.32	-6%		
Burner	3	Basic	Running belt items → chest Running belt items → chest	Underground, side, one lane Underground, side, both lanes	1.60	-10%	1.60	1.73	+18%	1.32 -10%			1.32 -10%			1.00	-6%	1.40	1.50 +7%
Burner	3	Basic	Running belt items → chest	Underground, front, one lane	1.60		1.60	1.60		1.60			1.60			1.60			
Burner	3	Basic Basic		Underground, behind, one lane Underground, front/behind, both lanes	1.25 1.25	-3%	1.25	1.32	+6%	1.25		1.25	1.25		1.25	1.25		1.25	1.25 1.25
Burner	3	Basic		Underground, sideloaded onto empty belt	1.45	-2%	1.48	1.50	+1%	1.45 -2%			1.45 -2%			1.45		1.48	1.50 +1%
Burner	3	Basic		Splitter, side, one lane, blocked exit	1.73	-2%	1.76	1.80		1.73 -2%			1.73 -2%			1.73			
Burner	3	Basic Basic		Splitter, side, one lane, nonblocked exit Splitter, front/behind, one lane, blocked exit	1.50	-7% -2%	1.62	1.73	+7%	1.50 -7%			1.50 -7%			1.50	-6%	1.60	1.73 +8%
Burner	3	Basic	-	Splitter, side, both lanes, blocked exit	1.71	-1%	1.73	1.74	+1%	1.71 -1%			1.71 -1%			1.71		1.71	1.71
Burner	3	Basic		Splitter, side, both lanes, nonblocked exit	1.60	-5%	1.68	1.73		1.60 -5%			1.60 -5%			1.73		1.73	
Burner	3	Basic Basic	Running belt items → chest Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit Straight side near lane	1.59	-2%	1.63	1.68	+3%	1.59 -2%			1.59 -2%			1.59			
Burner	3	Basic	Queued belt items → chest		1.74		1.74	1.74											
Burner	3	Basic	Queued belt items → chest		1.74		1.74	1.74											
Burner	3	Basic Basic	Queued belt items → chest	Straight, side, sideloaded onto empty belt Straight, towards, one lane	1.66	-3%	1.71	1.74	+2%	0						-			
Burner	3	Basic	Queued belt items → chest		1.60		1.60	1.60											
Burner	3	Basic Basic	Queued belt items → chest Queued belt items → chest		1.57 1.65	-7% -3%	1.69	1.83								-			
Burner	3	Basic	Queued belt items → chest		1.57	-3%	1.70	1.76		6									
Burner	3	Basic		Underground, side, one lane	1.74	-1%	1.76	1.80	+2%	6									
Burner	3	Basic Basic	Queued belt items → chest Queued belt items → chest	Underground, side, both lanes	1.74	-2% -2%	1.77	1.80	+2%	6						-			
Burner	3	Basic		Underground, front, one lane Underground, behind, one lane	1.59	-2.70	1.59	1.59	-27										
Burner	3	Basic		Underground, front/behind, both lanes	1.59	-2%	1.62	1.68		6									
Burner Burner	3	Basic Basic		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	1.51	-8% -1%	1.64	1.74		6									
Burner	3	Basic	Queued belt items → chest	Splitter, front/behind, one lane, blocked exit	1.59	-2%	1.63	1.68		6									
Burner	3	Basic		Splitter, side, both lanes, blocked exit	1.81		1.81	1.81											
Burner Stack	3	Basic	Queued belt items → chest Chest → chest	Splitter, front/behind, both lanes, blocked exit	1.59 9.23	-2%	1.63 9.23	1.68 9.23	+3%										
Stack	4	Express	Chest → belt	Non-splitter	7.74		7.74	7.74											
Stack Stack	4	Express		Splitter	8.00 7.50		8.00 7.50	8.00 7.50											
Stack	4	Express Express	-	•	7.50		7.50 7.50	7.50											
Stack	4	Express	Running belt items $\rightarrow$ chest	Straight, side, both lanes	7.50		7.50	7.50											
Stack Stack	4	Express		Straight, side, sideloaded onto empty belt	6.00		6.66 6.66	7.50 7.50		6									
Stack	4	Express Express	_		6.00	-10%	6.00	6.00	T13%										
Stack	4	Express	Running belt items → chest	Turn, both lanes	4.61		5.73	7.50		6									
Stack Stack	4	Express	9	Underground, side, one lane Underground, side, both lanes	6.66	-6% -4%	7.12 6.23	7.50 7.50		6						-			
Stack	4	Express		Underground, front, one lane	6.42	-470	6.42	6.42	-20%										
Stack	4	Express	Running belt items → chest	Underground, behind, one lane	6.42		6.42	6.42											
Stack	4	Express Express	_	Underground, front/behind, both lanes Underground, sideloaded onto empty belt	5.00	-14% -5%	5.80 5.27	6.42		6						-			
Stack	4	Express		Splitter, side, one lane, blocked exit	6.66	-6%	7.05	7.50		6									
Stack	4	Express		Splitter, side, one lane, nonblocked exit	6.00	-3%	6.20	6.42		6									
Stack Stack	4	Express Express		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	7.02 6.80		7.05 6.81	7.09 6.82	+1%										
Stack	4	Express	Running belt items → chest	Splitter, side, both lanes, nonblocked exit	5.62	-6%	6.00	6.66	+11%	6									
Stack	4	Express		Splitter, front/behind, both lanes, blocked exit			7.14	7.14											
Stack Stack	4	Express Express			8.00 8.27		8.00 8.27	8.00 8.27								-			
Stack	4	Express		•	8.00		8.00	8.00											
Stack	4	Express	Queued belt items → chest	Straight, side, sideloaded onto empty belt	8.27		8.27	8.27											
Stack	4	Express			7.27		7.27	7.27								-			
Stack	4	Express			7.27	-4%	7.57	7.74	+2%	6									
Stack	4	Express	Queued belt items → chest	Turn, inner lane	7.50	-2%	7.65	7.74		6									
Stack	4	Express	Queued belt items → chest	Turn, both lanes	7.27	-5%	7.65	8.00	+5%	6									

Inserter		Belt Type	Setup Move type	Belt tile type			all directions, a	Max [14]		Dito, north→so Min [16] [17]		ll belt phases [8] Max [19] [20]			belt phases [9] Max [24] [25]			ingle belt phase Max (29) (30)
Type Stack		Express	Queued belt items → chest	Underground, side, one lane	8.00	[12] -1%	8.06	8.27		mili [10] [17]	wedii [18]	wax [19] [20]	WIII [21] [22]	wearr [23]	wax [24] [25]	WIII [20] [2/]	wearr [28]	wax [29] [30]
Stack			Queued belt items $\rightarrow$ chest	Underground, side, both lanes	8.00		8.00	8.00										
Stack Stack				Underground, front, one lane Underground, behind, one lane	7.27		7.27 7.27	7.27										
Stack		Express	Queued belt items → chest	Underground, front/behind, both lanes	7.27		7.27	7.27										
Stack Stack				Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	7.05 8.00	-7% -2%	7.55 8.13	8.00 8.27	+6%									
Stack				Splitter, front/behind, one lane, blocked exit	7.27		7.27	7.27										
Stack Stack	4	Express Express		Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	8.00 7.27		8.00 7.27	8.00 7.27										
Stack	4	Fast		Non-splitter	7.05		7.05	7.05										
Stack	4	Fast		Splitter	7.05	-6%	7.50	7.74	+3%									
Stack Stack	4	Fast Fast	Running belt items → chest Running belt items → chest		6.66 7.50		6.66 7.50	6.66 7.50										
Stack	4		Running belt items → chest	Straight, side, both lanes	6.66		6.66	6.66										
Stack	4		Running belt items → chest Running belt items → chest	Straight, side, sideloaded onto empty belt	5.45 5.45	-9% -12%	6.00	6.66	+11%									
Stack	4		Running belt items → chest		6.00	-4%	6.23	6.66	+7%									
Stack Stack	4		Running belt items → chest	Turn, both lanes Underground, side, one lane	5.00 6.00	-17% -9%	6.05 6.62	7.50 7.50										
Stack				Underground, side, both lanes	5.00			6.66										
Stack Stack				Underground, front, one lane	6.00		6.00 7.50	6.00 7.50										
Stack				Underground, behind, one lane Underground, front/behind, both lanes	7.50 6.66	-6%	7.08		+6%									
Stack				Underground, sideloaded onto empty belt	5.45	-3%	5.64	6.00	+6%									
Stack Stack				Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	6.00	-5% -7%	6.31	6.66	+6%									
Stack	4	Fast	Running belt items $\rightarrow$ chest	Splitter, front/behind, one lane, blocked exit	5.45	-7%	5.85	6.00	+3%									
Stack Stack	4	Fast Fast		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	6.66 5.00	-12%	6.66 5.71	6.66	+17%									
Stack	4	Fast	Running belt items → chest	Splitter, front/behind, both lanes, blocked exit	7.05	-12%	7.11	7.27	+2%									
Stack Stack	4		Queued belt items - chest		7.50 8.00		7.50 8.00	7.50 8.00										
Stack	4		Queued belt items → chest Queued belt items → chest		7.50		7.50	7.50										
Stack		Fast	Queued belt items → chest	Straight, side, sideloaded onto empty belt	8.27		8.27	8.27										
Stack			Queued belt items → chest Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	7.27 7.27		7.27 7.27	7.27 7.27										
Stack	4	Fast	Queued belt items → chest	Turn, outer lane	6.85	-5%	7.20	7.50	+4%									
Stack Stack			Queued belt items → chest Queued belt items → chest		7.27 6.85	-2% -7%	7.42 7.38	7.74	+4% +5%									
Stack	4	Fast		Underground, side, one lane	7.50	-1%	7.61	8.00	+5%									
Stack				Underground, side, both lanes	6.66 7.27		6.66 7.27	6.66										
Stack				Underground, front, one lane Underground, behind, one lane	7.27		7.27	7.27										
Stack				Underground, front/behind, both lanes	7.27		7.27	7.27										
Stack				Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	6.85 7.50	-4% -1%	7.16 7.61	8.00 7.74	+12%									
Stack				Splitter, front/behind, one lane, blocked exit	7.27		7.27	7.27										
Stack Stack	4			Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	6.85 7.27		6.85 7.27	6.85 7.27										
Stack	4	Basic		Non-splitter	5.71		5.71	5.71										
Stack Stack				Splitter	6.31 6.92	-4%	6.54 6.92	6.66	+2%									
Stack			Running belt items → chest Running belt items → chest		7.50		7.50	7.50										
Stack		Basic	Running belt items $\rightarrow$ chest	Straight, side, both lanes	6.92		6.92	6.92										
Stack Stack		Basic Basic	Running belt items → chest Running belt items → chest	Straight, side, sideloaded onto empty belt Turn, outer lane	5.00 5.45	-8% -13%	5.45 6.27	6.00 7.50										
Stack	4	Basic	Running belt items → chest	Turn, inner lane	5.45	-5%	5.71	6.00	+5%									
Stack Stack			Running belt items → chest	Turn, both lanes Underground, side, one lane	5.00 6.00	-15%	5.86 6.00	7.50 6.00	+28%									
Stack				Underground, side, both lanes	5.62	-6%	5.99	6.00										
Stack				Underground, front, one lane	6.00		6.00	6.00										
Stack				Underground, behind, one lane Underground, front/behind, both lanes	5.00	-18%	5.00 6.07	5.00 7.50	+24%									
Stack	4	Basic	Running belt items $\rightarrow$ chest	Underground, sideloaded onto empty belt	4.28			5.00	+4%									
Stack Stack		Basic Basic		Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	3.75 5.00		3.75 5.00	3.75 5.00										
Stack	4	Basic	Running belt items → chest	Splitter, front/behind, one lane, blocked exit	3.75		3.75	3.75										
Stack Stack	4	Basic Basic		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	6.22 3.33	220/	6.25 4.95	6.31	+1%									
Stack				Splitter, front/behind, both lanes, blocked exit		-1%	7.14	7.21										
Stack		Basic	Queued belt items → chest	Straight, side, near lane	7.05		7.05	7.05										
Stack			Queued belt items → chest Queued belt items → chest		7.50 7.05		7.50 7.05	7.50 7.05										
Stack	4	Basic	Queued belt items → chest	Straight, side, sideloaded onto empty belt	7.50		7.50	7.50										
Stack Stack			Queued belt items → chest Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	6.00		6.00	6.00										
Stack	4	Basic	Queued belt items → chest	Turn, outer lane	5.85		6.60	7.50										
Stack Stack			Queued belt items → chest Queued belt items → chest		5.85 5.85	-3% -12%	6.05 6.66	6.48 7.74										
Stack				Turn, both lanes Underground, side, one lane	6.15	-12% -4%		6.66										
Stack		Basic	Queued belt items → chest	Underground, side, both lanes	6.66	-1%	6.76	6.85										
Stack				Underground, front, one lane Underground, behind, one lane	6.48	-4%	6.76 6.66	7.05 6.66	+4%									
Stack	4	Basic	Queued belt items $\rightarrow$ chest	Underground, front/behind, both lanes	6.66	-2%	6.79	6.85										
Stack Stack				Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	6.15 6.15	-8% -5%		7.50 6.85	+12% +6%							-		
Stack		Basic	Queued belt items → chest	Splitter, front/behind, one lane, blocked exit	6.31	-1%		6.48	+1%									
Stack Stack				Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	6.66 6.85	-1%	6.66 6.95	6.66 7.05	+1%									
Stack	2	DaSIC	Queued belt items → chest Chest → chest	opiker, ironobenina, both lanes, blocked exit	6.85 4.61	-1%	6.95 4.61	7.05 4.61	+1%									
Fast				Non-splitter	4.44		4.44	4.44										
Fast Fast			Chest → belt Running belt items → chest	Splitter Straight, side, near lane	4.44		4.44 4.28	4.44										
Fast	2	Express	Running belt items → chest	Straight, side, far lane	4.28		4.28	4.29										
Fast Fast			Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	4.28 3.75		4.28 3.75	4.28 3.75										
Fast			Running belt items → chest Running belt items → chest		3.75		3.75	3.75										
Fast			Running belt items → chest		3.46	-4%	3.60	3.75	+4%									
Fast Fast			Running belt items → chest Running belt items → chest	Turn, both lanes Underground, side, one lane	3.75 3.75	-9%	3.75 4.13	3.75 4.50	+9%									
Fast	2	Express	Running belt items $\rightarrow$ chest	Underground, side, both lanes	4.09	-4%	4.25	4.41										
Fast Fast		Express Express		Underground, front, one lane Underground, behind, one lane	3.75 3.75		3.75 3.75	3.75 3.75										
Fast	2	Express		Underground, benind, one lane Underground, front/behind, both lanes	3.75		3.75	3.75										
Fast		Express	Running belt items $\rightarrow$ chest	Underground, sideloaded onto empty belt	3.00	-9%	3.28	3.75	+14%									
Fast	2	Express		Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	4.61 3.75		4.61 3.75	4.61 3.75										

Туре	Stack size	Belt Type	Setup Move type	Belt tile type			all directions, a Mean [13]	Il belt phas Max [14]			Max [19] [20]			belt phases [9] Max [24] [25]	Dito, north→so Min [26] [27]		ingle belt phas Max [29] [30]
Fast	2	Express	Running belt items → chest	Splitter, front/behind, one lane, blocked exit	4.13		4.21	4.28	+2%	 ,	, ;==1		1		, .=.1	,	, ,, ,,,,,
Fast Fast	2	Express Express		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	4.61 3.52	-5%	4.61 3.69	4.61 3.75	+2%								
Fast Fast	2	Express		Splitter, side, both lanes, nonblocked exit Splitter, front/behind, both lanes, blocked exit	4.13	-5% -2%	4.21	4.28	+2%								
Fast	2	Express	Queued belt items → chest	Straight, side, near lane	4.28		4.28	4.28									
Fast Fast	2	Express Express	Queued belt items → chest		4.44 4.28		4.44 4.28	4.44									
Fast Fast	2	Express	Queued belt items → chest Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	4.28	-2%	4.28 4.52	4.28	+2%								
Fast	2	Express	Queued belt items → chest		4.13		4.13	4.13									
Fast	2	Express		Straight, towards, both lanes	4.13		4.13	4.13	+8%								
Fast Fast	2	Express Express	Queued belt items → chest Queued belt items → chest		4.00	-7% -5%	4.28 4.50	4.61	+8%								
Fast	2	Express	Queued belt items → chest		4.00	-9%	4.39	4.80	+9%								
Fast	2	Express		Underground, side, one lane	4.28	-4%	4.48	4.61	+3%								
Fast Fast	2	Express Express		Underground, side, both lanes Underground, front, one lane	4.28 4.13	-4% -2%	4.44 4.21	4.61	+4%								
Fast	2	Express		Underground, behind, one lane	4.13		4.13	4.13									
Fast	2	Express		Underground, front/behind, both lanes	4.13	-1%	4.18	4.28	+2%								
Fast Fast	2	Express Express		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	4.13 4.61	-5%	4.36 4.61	4.61 4.61	+6%								
Fast	2	Express		Splitter, front/behind, one lane, blocked exit	4.13	-2%	4.21	4.28	+2%								
Fast	2	Express		Splitter, side, both lanes, blocked exit	4.61		4.61	4.61									
Fast Fast	2	Express Fast		Splitter, front/behind, both lanes, blocked exit Non-splitter	4.13 4.44	-2%	4.21	4.28	+2%								
Fast	2	Fast	Chest → belt	Splitter	4.44		4.44	4.44									
Fast	2	Fast	Running belt items → chest		3.75		3.75	3.75									
Fast Fast	2	Fast Fast	Running belt items → chest Running belt items → chest	•	3.75 3.75	-3%	3.87	4.00 3.75	+3%								
Fast	2	Fast		Straight, side, sideloaded onto empty belt	3.75	-6%	4.00	4.28	+7%								
Fast	2	Fast	Running belt items → chest	Turn, outer lane	3.33	-5%	3.52	3.75	+7%								
Fast Fast	2	Fast Fast	Running belt items → chest Running belt items → chest		3.75	-5% -11%	3.93 3.73	4.28	+9%								
Fast	2	Fast		Underground, side, one lane	3.75	-11%	4.23	4.28	+15%								
Fast	2	Fast	Running belt items → chest	Underground, side, both lanes	3.75	-12%	4.27	4.61	+8%								
Fast Fast	2	Fast Fast		Underground, front, one lane	3.75 3.75	-6% -3%	4.00 3.87	4.28 4.28	+7%								
Fast	2	Fast		Underground, behind, one lane Underground, front/behind, both lanes	3.75	-5%	3.93	4.28	+11%								
Fast	2	Fast	Running belt items → chest	Underground, sideloaded onto empty belt	3.33	-7%	3.58	3.75	+5%								
Fast Fast	2	Fast Fast		Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	4.61 3.75	-9%	4.61 4.13	4.61	+4%			-					
Fast	2	Fast		Splitter, side, one lane, nonblocked exit  Splitter, front/behind, one lane, blocked exit	4.13	-9% -2%	4.13	4.28	+4%								
Fast	2	Fast	Running belt items → chest	Splitter, side, both lanes, blocked exit	4.61		4.61	4.61									
Fast Fast	2	Fast Fast		Splitter, side, both lanes, nonblocked exit Splitter, front/behind, both lanes, blocked exit	3.33 4.13	-14% -2%	3.87 4.21	4.28 4.28	+11%								
Fast	2	Fast	Queued belt items → chest		4.13	-270	4.21	4.28	T270								
Fast	2	Fast	Queued belt items → chest		4.44		4.44	4.44									
Fast	2	Fast	Queued belt items → chest		4.28 4.44		4.28	4.28									
Fast Fast	2	Fast Fast	Queued belt items → chest	Straight, side, sideloaded onto empty belt Straight towards one lane	4.44		4.44	4.44									
Fast	2	Fast		Straight, towards, both lanes	4.13		4.13	4.13									
Fast	2	Fast	Queued belt items → chest		4.00	-7%	4.28	4.61	+8%								
Fast Fast	2	Fast Fast	Queued belt items → chest Queued belt items → chest		4.28	-5% -9%	4.50 4.39	4.80	+7%								
Fast	2	Fast	Queued belt items → chest	Underground, side, one lane	4.28	-4%	4.48	4.61	+3%								
Fast	2	Fast		Underground, side, both lanes	4.28	-4%	4.44	4.61	+4%								
Fast Fast	2	Fast Fast		Underground, front, one lane Underground, behind, one lane	4.13 4.13	-2%	4.21 4.13	4.28 4.13	+2%								
Fast	2	Fast		Underground, front/behind, both lanes	4.13	-1%	4.18	4.28	+2%								
Fast	2	Fast		Underground, sideloaded onto empty belt	4.21	-3%	4.36	4.61	+6%								
Fast Fast	2	Fast Fast		Splitter, side, one lane, blocked exit Splitter, front/behind, one lane, blocked exit	4.61 4.13	-2%	4.61 4.21	4.61 4.28	+2%								
Fast	2	Fast		Splitter, side, both lanes, blocked exit	4.61		4.61	4.61									
Fast	2	Fast	Queued belt items → chest Chest → belt	Splitter, front/behind, both lanes, blocked exit	4.13	-2%	4.21	4.28	+2%								
Fast Fast		Basic Basic	Chest → belt Chest → belt	Non-splitter Splitter	4.44		4.44	4.44									
Fast		Basic	Running belt items → chest		4.27		4.28	4.28									
Fast	2	Basic	Running belt items $\rightarrow$ chest		4.28		4.28	4.29									
Fast Fast	2	Basic Basic	Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	4.28 3.75	-4%	4.28 3.91	4.28	±5%								
Fast	2	Basic	Running belt items → chest		3.75	-4%	4.09	4.09	+5%								
Fast	2	Basic	Running belt items → chest		4.28		4.28	4.28									
Fast Fast	2	Basic Basic	Running belt items → chest	Turn, both lanes Underground, side, one lane	3.91 4.28	-6% -3%	4.18 4.39	4.28 4.50	+2%			-					
Fast		Basic		Underground, side, both lanes	4.28		4.39	4.50	+3%								
Fast	2	Basic	Running belt items → chest	Underground, front, one lane	3.75		3.75	3.75									
Fast Fast	2	Basic Basic		Underground, behind, one lane Underground, front/behind, both lanes	3.75 3.75		3.75 3.75	3.75				-					
Fast	2	Basic		Underground, sideloaded onto empty belt		-15%	3.75	3.75	+7%								
Fast	2	Basic	Running belt items → chest	Splitter, side, one lane, blocked exit	3.75		3.75	3.75									
Fast Fast	2	Basic Basic		Splitter, side, one lane, nonblocked exit Splitter, front/behind, one lane, blocked exit	3.75 3.75		3.75 3.75	3.75 3.75									
Fast	2	Basic		Splitter, front/benind, one lane, blocked exit  Splitter, side, both lanes, blocked exit	4.50		4.50	4.51									
Fast	2	Basic	Running belt items $\rightarrow$ chest	Splitter, side, both lanes, nonblocked exit		-17%	3.63	3.75	+3%								
Fast Fast	2	Basic		Splitter, front/behind, both lanes, blocked exit	4.23 4.28	-2%	4.30 4.28	4.37 4.28	+2%								
Fast	2	Basic Basic	Queued belt items → chest Queued belt items → chest		4.28		4.28	4.28									
Fast	2	Basic	Queued belt items → chest	Straight, side, both lanes	4.28		4.28	4.28									
Fast Fast		Basic		Straight, side, sideloaded onto empty belt	4.44		4.44	4.44									
Fast Fast		Basic Basic	Queued belt items → chest Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	4.13 4.13		4.13 4.13	4.13 4.13									
Fast	2	Basic	Queued belt items → chest	Turn, outer lane	4.00		4.28	4.61									
Fast	2	Basic	Queued belt items → chest		4.28	-5%	4.50		+7%								
Fast Fast	2	Basic Basic	Queued belt items → chest Queued belt items → chest	Turn, both lanes Underground, side, one lane	4.00 4.28	-9% -4%	4.39 4.48	4.80 4.61	+9%								
Fast	2	Basic	Queued belt items → chest	Underground, side, both lanes	4.28	-4%	4.44	4.61	+4%								
Fast	2	Basic		Underground, front, one lane	4.13	-2%	4.21	4.28	+2%								
Fast Fast	2	Basic Basic		Underground, behind, one lane Underground, front/behind, both lanes	4.13 4.13	-1%	4.13 4.18	4.13 4.28	+2%								
Fast		Basic		Underground, sideloaded onto empty belt	4.13	-4%	4.18	4.28	+7%								
Fast	_	Basic	Queued belt items → chest	Splitter, side, one lane, blocked exit	4.61		4.61	4.61									
Fast		Basic		Splitter, front/behind, one lane, blocked exit	4.13	-2%	4.21	4.28	+2%								
Fast Fast		Basic Basic		Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	4.61 4.13	-2%	4.61 4.21	4.61 4.28	+2%								
Long-handed			Chest → chest	, , , , , , , , , , , , , , , , , , ,	2.35	-1%	2.37	2.40	+1%								
Long-handed		Express	Chest → belt	Non-splitter	2.30	-1%	2.33	2.35	+1%								
Long-handed Long-handed		Express Express	Chest → belt Running belt items → chest	Splitter Straight side near lane	2.30	-1%	2.33	2.35	+1%			-					
				Straight, side, far lane	2.14		2.14	2.14							l		

Inserter		Belt	Setup		Items/sec	cond al	I directions all	belt phases [7]	Dito north→so	uth direction, all	I belt phases [8]	Dito west→ea	st direction, all b	elt phases [9]	Dito north→so	uth direction sir	ngle belt phase [
	Stack size		Move type	Belt tile type			Mean [13]		Min [16] [17]		Max [19] [20]	Min [21] [22]		Max [24] [25]	Min [26] [27]		Max [29] [30]
Long-handed	2	Express	Running belt items → chest	Straight, side, both lanes	2.14		2.14	2.14									
Long-handed		Express		Straight, side, sideloaded onto empty belt	1.87	-7%	2.00	2.14 +7%									
Long-handed	2	Express		Straight, towards, one lane	2.14		2.14	2.14									
Long-handed Long-handed	2	Express Express	Running belt items → chest Running belt items → chest	Straight, towards, both lanes	2.14 1.50	-13%	2.14 1.73	2.14									
Long-handed	2	Express	Running belt items → chest		1.76	-6%	1.88	2.00 110%									
Long-handed	2	Express	Running belt items → chest		1.76	-5%	1.86	2.04 +10%									
Long-handed		Express		Underground, side, one lane	2.14		2.14	2.14									
Long-handed Long-handed		Express Express		Underground, side, both lanes Underground, front, one lane	2.14	-7%	2.14	2.14 +7%									
Long-handed		Express		Underground, behind, one lane	1.87	-7%	2.00	2.14 +7%									
Long-handed		Express		Underground, front/behind, both lanes	1.87	-7%	2.00	2.14 +7%									
Long-handed	2	Express		Underground, sideloaded onto empty belt	1.66	-5%	1.75	1.87 +7%									
Long-handed		Express		Splitter, side, one lane, blocked exit	2.35	-1%	2.37	2.40 +1%									
Long-handed Long-handed		Express Express		Splitter, side, one lane, nonblocked exit Splitter, front/behind, one lane, blocked exit	1.87 2.10	-2%	1.87	1.87 2.18 +2%									
Long-handed		Express		Splitter, side, both lanes, blocked exit	2.40	-2.70	2.40	2.40									
Long-handed		Express		Splitter, side, both lanes, nonblocked exit	1.87		1.87	1.87									
Long-handed	2	Express		Splitter, front/behind, both lanes, blocked exit	2.10	-2%	2.14	2.18 +2%									
Long-handed	2	Express	Queued belt items → chest		2.26	-1%	2.29	2.30									
Long-handed Long-handed	2	Express Express	Queued belt items → chest Queued belt items → chest		2.26	-1%	2.29	2.30									
Long-handed	2	Express		Straight, side, sideloaded onto empty belt	2.26	-2%	2.30	2.30									
Long-handed	2	Express	Queued belt items → chest		2.10		2.10	2.10									
Long-handed	2	Express		Straight, towards, both lanes	2.10		2.10	2.10									
Long-handed		Express	Queued belt items → chest		2.10	-5%	2.21	2.30 +4%									
Long-handed		Express Express	Queued belt items → chest		2.18	-4% -6%	2.26	2.35 +4%									
Long-handed Long-handed			Queued belt items → chest Queued belt items → chest	Underground, side, one lane	2.10	-2%	2.23	2.35 +5%									
Long-handed				Underground, side, both lanes	2.30	-2%	2.35	2.40 +2%									
Long-handed		Express	Queued belt items $\rightarrow$ chest	Underground, front, one lane	2.10	-2%	2.14	2.18 +2%									
Long-handed		Express		Underground, behind, one lane	2.10	-1%	2.12	2.14 +1%									
Long-handed Long-handed		Express Express		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	2.10	-2% -4%	2.14	2.18 +2% 2.35 +3%									
Long-handed Long-handed		Express		Splitter, side, one lane, blocked exit	2.18	-4%	2.28	2.35 +3%				1					
Long-handed		Express		Splitter, front/behind, one lane, blocked exit	2.10	-2%	2.14	2.18 +2%									
Long-handed		Express	Queued belt items → chest	Splitter, side, both lanes, blocked exit	2.40		2.40	2.40									
Long-handed	2			Splitter, front/behind, both lanes, blocked exit	2.10	-2%	2.14	2.18 +2%									
Long-handed Long-handed	2 2	Fast Fast	Chest → belt Chest → belt	Non-splitter Splitter	2.30	-1% -1%	2.33	2.35 +1%				-					
Long-handed	2	Fast	Running belt items → chest	- P	2.06	-1%	2.33	2.35 +1%									
Long-handed	2	Fast	Running belt items → chest		2.14		2.14	2.14									
Long-handed	2	Fast	Running belt items → chest		2.06	-1%	2.08	2.14 +3%									
Long-handed	2	Fast		Straight, side, sideloaded onto empty belt	2.00	-4%	2.08	2.19 +5%									
Long-handed Long-handed	2 2	Fast Fast	Running belt items → chest	Straight, towards, one lane Straight, towards, both lanes	1.76		1.76	1.76									
Long-handed	2	Fast	Running belt items → chest		_	-10%	1.84	2.06 +12%									
Long-handed		Fast	Running belt items → chest		1.87	-8%	2.03	2.14 +5%									
Long-handed	2	Fast	Running belt items → chest	Turn, both lanes	1.66	-14%	1.92	2.14 +11%									
Long-handed		Fast		Underground, side, one lane	2.00	-10%	2.21	2.22									
Long-handed		Fast Fast		Underground, side, both lanes	2.00	-10% -7%	2.21	2.22									
Long-handed Long-handed		Fast		Underground, front, one lane Underground, behind, one lane	1.87	-7%	2.00	2.14 +7%									
Long-handed				Underground, front/behind, both lanes	1.87	-7%	2.00	2.14 +7%									
Long-handed	2	Fast	Running belt items → chest	Underground, sideloaded onto empty belt	1.76	-7%	1.89	2.00 +6%									
Long-handed		Fast		Splitter, side, one lane, blocked exit	2.35	-1%	2.37	2.40 +1%									
Long-handed		Fast		Splitter, side, one lane, nonblocked exit	2.00	-2% -2%	2.05	2.14 +4% 2.18 +2%									
Long-handed Long-handed	2	Fast Fast		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	2.10 2.40	-2%	2.14	2.18 +2%									
Long-handed	2	Fast		Splitter, side, both lanes, nonblocked exit	1.87	-8%	2.03	2.14 +5%									
Long-handed	2	Fast		Splitter, front/behind, both lanes, blocked exit	2.10	-2%	2.14	2.18 +2%									
Long-handed	2	Fast	Queued belt items → chest		2.26	-1%	2.29	2.30									
Long-handed	2 2	Fast Fast	Queued belt items → chest Queued belt items → chest		2.26 2.26	-1% -1%	2.29	2.30									
Long-handed Long-handed	2			Straight, side, sideloaded onto empty belt	2.26	-1%	2.29	2.35 +2%									
Long-handed	2		Queued belt items → chest		2.10	270	2.10	2.10									
Long-handed	2			Straight, towards, both lanes	2.10		2.10	2.10									
Long-handed	2	Fast	Queued belt items $\rightarrow$ chest		2.10	-5%	2.21	2.30 +4%									
Long-handed	2		Queued belt items → chest		2.18 1.96	-2% -9%	2.23	2.30 +3% 2.30 +7%				-					
Long-handed Long-handed	2	Fast Fast	Queued belt items → chest Queued belt items → chest	Turn, both lanes Underground, side, one lane	1.96 2.26	-9% -3%	2.15	2.30 +7% 2.40 +3%									
Long-handed				Underground, side, both lanes	2.30	-2%	2.35	2.40 +3%									
Long-handed	2	Fast	Queued belt items $\rightarrow$ chest	Underground, front, one lane	2.10	-2%	2.14	2.18 +2%									
Long-handed				Underground, behind, one lane	2.10	-2%	2.14	2.18 +2%									
Long-handed Long-handed				Underground, front/behind, both lanes Underground, sideloaded onto empty belt	2.10 2.14	-1% -5%	2.13	2.18 +2% 2.35 +4%									
Long-handed				Splitter, side, one lane, blocked exit	2.14	-1%	2.26	2.40 +1%									
Long-handed		Fast	Queued belt items $\rightarrow$ chest	Splitter, front/behind, one lane, blocked exit	2.10	-2%	2.14	2.18 +2%									
Long-handed	2			Splitter, side, both lanes, blocked exit	2.40		2.40	2.40									
Long-handed	2			Splitter, front/behind, both lanes, blocked exit	2.10	-2%	2.14	2.18 +2%									
Long-handed Long-handed		Basic Basic	Chest → belt Chest → belt	Non-splitter Splitter	2.30	-1% -1%	2.33	2.35 +1% 2.35 +1%									
Long-handed			Running belt items → chest		2.14	1 /0	2.33	2.35 +1%									
Long-handed			Running belt items → chest		2.14		2.14	2.14									
Long-handed		Basic	Running belt items $\rightarrow$ chest	Straight, side, both lanes	2.14		2.14	2.14									
Long-handed				Straight, side, sideloaded onto empty belt	1.87	-11%	2.10	2.25 +7%									
Long-handed Long-handed			Running belt items → chest	Straight, towards, one lane Straight, towards, both lanes	2.00		2.00	2.00									
Long-handed Long-handed			Running belt items → chest Running belt items → chest		1.87	-4%	1.95	2.00 +3%									
Long-handed			Running belt items → chest		2.14		2.15	2.21 +3%									
Long-handed		Basic	Running belt items → chest	Turn, both lanes	1.87	-8%	2.04	2.21 +8%									
Long-handed				Underground, side, one lane	2.14	-6%	2.27	2.34 +3%									
Long-handed				Underground, side, both lanes Underground, front, one lane	2.14	-6% -1%	2.27	2.30 +1% 2.22 +2%				-					
Long-handed Long-handed		Basic		Underground, front, one lane Underground, behind, one lane	2.14	-176	2.17	2.22 +2%				1					
Long-handed		Basic		Underground, front/behind, both lanes	2.14		2.15	2.22 +3%									
Long-handed	2	Basic	Running belt items → chest	Underground, sideloaded onto empty belt	1.87	-4%	1.94	2.14 +10%									
Long-handed		Basic		Splitter, side, one lane, blocked exit	2.35	-1%	2.37	2.40 +1%									
Long-handed Long-handed		Basic Basic		Splitter, side, one lane, nonblocked exit Splitter, front/behind, one lane, blocked exit	2.14	-2%	2.14	2.14 2.18 +2%				-					
Long-handed Long-handed				Splitter, front/behind, one lane, blocked exit  Splitter, side, both lanes, blocked exit	2.10	-270	2.14	2.18 +2%									
Long-handed				Splitter, side, both lanes, nonblocked exit		-17%	2.01	2.14 +6%									
Long-handed		Basic	Running belt items → chest	Splitter, front/behind, both lanes, blocked exit	2.10	-2%	2.14	2.18 +2%									
Long-handed			Queued belt items → chest		2.26	-1%	2.29	2.30									
Long-handed			Queued belt items → chest		2.26	-1%	2.29	2.30									
Long-handed Long-handed			Queued belt items → chest Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	2.30	-1%	2.30	2.30									
Long-handed			Queued belt items → chest		2.20	-170	2.29	2.10									
. 5												1					

Inserter		Belt	Setup									Il belt phases [8]						ingle belt phase
Type Long-handed	Stack size	Type Basic	Move type  Queued belt items → chest	Belt tile type Straight, towards, both lanes	Min [11] 2.10	[12]	Mean [13] 2.10	Max [14]	[15]	Min [16] [17]	Mean [18]	Max [19] [20]	Min [21] [22]	Mean [23]	Max [24] [25]	Min [26] [27]	Mean [28]	Max [29] [30]
Long-handed	2	Basic	Queued belt items → chest	Turn, outer lane	2.10	-5%	2.21	2.30	+4%									
Long-handed Long-handed		Basic Basic	Queued belt items → chest Queued belt items → chest		2.18 2.10	-4% -6%	2.26	2.35 2.35	+4%									
Long-handed Long-handed		Basic		Underground, side, one lane	2.10	-6%	2.23	2.35	+5%									
Long-handed		Basic	Queued belt items → chest	Underground, side, both lanes	2.30	-2%	2.35	2.40	+2%									
Long-handed		Basic		Underground, front, one lane	2.10	-2%		2.18	+2%									
Long-handed Long-handed		Basic Basic		Underground, behind, one lane Underground, front/behind, both lanes	2.10	-1% -2%	2.12	2.14	+1%									
Long-handed		Basic		Underground, sideloaded onto empty belt	2.14	-5%		2.35	+4%									
Long-handed		Basic		Splitter, side, one lane, blocked exit	2.35	-1%		2.40	+1%									
Long-handed Long-handed		Basic Basic		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	2.10	-2%	2.14	2.18	+2%									
Long-handed		Basic		Splitter, front/behind, both lanes, blocked exit	2.10	-2%	2.14	2.18	+2%									
Basic	2	_	Chest → chest		1.66		1.66	1.66										
Basic Basic		Express Express	Chest → belt  Chest → belt	Non-splitter Splitter	1.64		1.64	1.64										
Basic		Express	Running belt items → chest	- F	1.33		1.33	1.33										
Basic		Express	Running belt items → chest		1.43	-1%	1.44	1.45	+1%									
Basic Basic		Express Express	Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	1.30	-6%	1.30	1.30	+7%									
Basic		Express	Running belt items → chest		1.36	0,0	1.36	1.36	-170									
Basic		Express	Running belt items → chest		1.30	-2%	1.33	1.36	+2%									
Basic Basic		Express Express	Running belt items → chest	Turn, both lanes Underground, side, one lane	1.25 1.50	-4% -1%	1.30	1.36	+5%									
Basic	2	Express		Underground, side, both lanes	1.50	-3%	1.55	1.60	+3%									
Basic	2	Express		Underground, front, one lane	1.36		1.36	1.36										
Basic	2	Express		Underground, behind, one lane	1.36		1.36	1.36										
Basic Basic	2	Express Express		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	1.36	-5%	1.36	1.36	+8%									
Basic	2	Express	Running belt items → chest	Splitter, side, one lane, blocked exit	1.71	-1%	1.73	1.76	+2%									
Basic	2	Express		Splitter, side, one lane, nonblocked exit	1.36		1.36	1.36										
Basic Basic		Express Express		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	1.53	-3%	1.58	1.64	+4%									
Basic		Express		Splitter, side, both lanes, nonblocked exit	1.36		1.36	1.36										
Basic		Express	-	Splitter, front/behind, both lanes, blocked exit	1.53	-3%	1.58	1.64	+4%									
Basic Basic		Express Express	Queued belt items → chest Queued belt items → chest	•	1.62		1.62	1.62										
Basic		Express	Queued belt items → chest		1.62		1.62	1.62										
Basic		Express	Queued belt items $\rightarrow$ chest	Straight, side, sideloaded onto empty belt	1.62	-1%	1.64	1.66	+1%									
Basic Basic		Express Express	Queued belt items → chest Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	1.53		1.53	1.53										
Basic		Express	Queued belt items → chest		1.51	-6%	1.60	1.69	+6%									
Basic		Express	Queued belt items → chest		1.60	-4%	1.67	1.73	+4%									
Basic Basic	2	Express Express	Queued belt items → chest	Turn, both lanes Underground, side, one lane	1.51	-8% -3%	1.64	1.73	+5%									
Basic	2	Express		Underground, side, both lanes	1.62	-4%	1.69	1.76	+4%									
Basic	2	Express		Underground, front, one lane	1.53	-3%	1.58	1.64	+4%									
Basic Basic	2	Express Express		Underground, behind, one lane Underground, front/behind, both lanes	1.53	-3%	1.53	1.53	+4%									
Basic	2	Express		Underground, sideloaded onto empty belt	1.53	-6%	1.62	1.04	+4%									
Basic	2	Express	Queued belt items → chest	Splitter, side, one lane, blocked exit	1.71	-1%		1.76	+2%									
Basic Basic	2	Express		Splitter, front/behind, one lane, blocked exit	1.53	-3%	1.58	1.64	+4%									
Basic	2	Express Express		Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	1.76	-3%	1.76	1.76	+4%									
Basic	2	Fast	Chest → belt	Non-splitter	1.64		1.64	1.64										
Basic	2	Fast	Chest → belt	Splitter	1.64		1.64	1.64										
Basic Basic	2	Fast Fast	Running belt items → chest Running belt items → chest		1.50	-4% -3%	1.57	1.66	+6%									
Basic	2	Fast	Running belt items → chest		1.50	-4%	1.57	1.66	+6%									
Basic		Fast		Straight, side, sideloaded onto empty belt	1.42	-3%	1.47	1.50	+2%									
Basic Basic	2	Fast Fast	Running belt items → chest Running belt items → chest		1.36	-7% -3%	1.46	1.57	+8%									
Basic	2	Fast	Running belt items → chest		1.36	-7%	1.46	1.57	+8%									
Basic	2	Fast		Underground, side, one lane	1.50	-6%	1.60	1.66	+4%									
Basic Basic	2	Fast Fast		Underground, side, both lanes Underground, front, one lane	1.57	-3%	1.62	1.66	+2%									
Basic	2	Fast		Underground, behind, one lane	1.50		1.50	1.50										
Basic	2	Fast		Underground, front/behind, both lanes	1.50		1.50	1.50										
Basic Basic		Fast Fast		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	1.30	-8% -1%	1.42	1.50	+6%									
Basic		Fast		Splitter, side, one lane, nonblocked exit	1.71	-1%	1.73	1.76	+2%									
Basic		Fast	Running belt items → chest	Splitter, front/behind, one lane, blocked exit	1.53	-3%	1.58	1.64	+4%									
Basic		Fast		Splitter, side, both lanes, blocked exit	1.76	-2%	1.76	1.76	+3%									
Basic Basic		Fast Fast		Splitter, side, both lanes, nonblocked exit Splitter, front/behind, both lanes, blocked exit	1.50	-2%		1.57	+3%									
Basic	2	Fast	Queued belt items → chest	Straight, side, near lane	1.62		1.62	1.62										
Basic			Queued belt items → chest		1.62		1.62	1.62										
Basic Basic			Queued belt items → chest Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	1.62	-1%	1.62	1.62	+1%									
Basic			Queued belt items → chest		1.53		1.53	1.53										
Basic		Fast		Straight, towards, both lanes	1.53		1.53	1.53										
Basic Basic	2	Fast Fast	Queued belt items → chest Queued belt items → chest		1.51	-6% -4%		1.69	+6%									
Basic	2	Fast	Queued belt items → chest		1.51	-8%		1.73	+5%									
Basic	2	Fast		Underground, side, one lane	1.62	-3%		1.76	+5%									
Basic Basic	2	Fast Fast		Underground, side, both lanes Underground, front, one lane	1.62	-4% -3%		1.76	+4%									
Basic	2	Fast		Underground, behind, one lane	1.53	3 /6	1.53	1.53	- 4 /0									
Basic	2	Fast		Underground, front/behind, both lanes	1.53	-3%		1.64	+4%									
Basic Basic	2	Fast Fast		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	1.57	-4% -1%		1.71	+5%									
Basic		Fast		Splitter, side, one lane, blocked exit  Splitter, front/behind, one lane, blocked exit	1.71	-1%		1.64	+4%									
Basic	2	Fast	Queued belt items → chest	Splitter, side, both lanes, blocked exit	1.76		1.76	1.76										
Basic Basic		Fast Basic		Splitter, front/behind, both lanes, blocked exit Non-splitter	1.53	-3%	1.58	1.64	+4%									
Basic Basic		Basic Basic		Non-splitter Splitter	1.64		1.64	1.64										
Basic	2	Basic	Running belt items → chest	Straight, side, near lane	1.66		1.66	1.66										
Basic		Basic	Running belt items → chest		1.66		1.66	1.66										
Basic Basic		Basic Basic	Running belt items → chest Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	1.57	-2% -6%	1.61	1.66	+3%									
Basic	2	Basic	Running belt items → chest		1.36	-4%		1.50	+6%									
Basic	2	Basic	Running belt items → chest	Turn, inner lane	1.50	-4%	1.57	1.66	+6%									
Basic Basic	2	Basic Basic	Running belt items → chest	Turn, both lanes Underground, side, one lane	1.25	-17% -4%		1.66	+11%									
Basic	2	Basic Basic		Underground, side, one lane Underground, side, both lanes	1.66	-+176	1.63	1.66	-276									
Basic	2	Basic	Running belt items → chest	Underground, front, one lane	1.50		1.50	1.50										
Basic	2	Basic	Running belt items $\rightarrow$ chest	Underground, behind, one lane	1.50		1.50	1.50										

Inserter		Belt	Setup							Dito, north→so						Dito, north→so		
Type Basic	Stack size	Type Basic		Belt tile type Underground, front/behind, both lanes	Min [11] 1.50	[12]	Mean [13] 1.50	Max [14]	[15]	Min [16] [17]	Mean [18]	Max [19] [20]	Min [21] [22]	Mean [23]	Max [24] [25]	Min [26] [27]	Mean [28]	Max [29] [30]
Basic		Basic		Underground, sideloaded onto empty belt	1.36	-4%	1.42	1.50	+6%									
Basic	2	Basic		Splitter, side, one lane, blocked exit	1.71	-1%	1.73	1.76	+2%									
Basic Basic	2	Basic Basic		Splitter, side, one lane, nonblocked exit Splitter, front/behind, one lane, blocked exit	1.50	-7% -3%	1.62	1.66	+2%									
Basic	2	Basic		Splitter, side, both lanes, blocked exit	1.76	-570	1.76	1.76	1470									
Basic	2	Basic		Splitter, side, both lanes, nonblocked exit	1.57	-3%	1.62	1.66	+2%									
Basic Basic		Basic Basic	Running belt items → chest Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit	1.53	-3%	1.58	1.64	+4%									
Basic		Basic	Queued belt items → chest	•	1.62		1.62	1.62										
Basic		Basic	Queued belt items → chest		1.62		1.62	1.62										
Basic		Basic		Straight, side, sideloaded onto empty belt	1.62	-1%	1.64	1.66	+1%									
Basic Basic		Basic Basic	Queued belt items → chest Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	1.53		1.53	1.53										
Basic		Basic	Queued belt items → chest		1.51	-6%	1.60	1.69	+6%									
Basic		Basic	Queued belt items → chest		1.60	-4%	1.67	1.73	+4%									
Basic Basic		Basic Basic	Queued belt items → chest	Turn, both lanes Underground, side, one lane	1.51	-8% -3%	1.64	1.73	+5% +5%									
Basic	2	Basic		Underground, side, both lanes	1.62	-4%	1.69	1.76	+4%									
Basic	2	Basic	Queued belt items $\rightarrow$ chest	Underground, front, one lane	1.53	-3%	1.58	1.64	+4%									
Basic Basic	2	Basic Basic		Underground, behind, one lane	1.53	-3%	1.53	1.53	+4%									
Basic Basic	2	Basic		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	1.53	-3%	1.57	1.64	+4%									
Basic	2	Basic		Splitter, side, one lane, blocked exit	1.71	-1%	1.73	1.76	+2%									
Basic		Basic		Splitter, front/behind, one lane, blocked exit	1.53	-3%	1.58	1.64	+4%									
Basic Basic		Basic Basic		Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	1.76	-3%	1.76	1.76	+4%									
Burner	2	Sucit	Chest → chest	ap, nonvocamo, pour lance, procede exit	1.18	-1%	1.19	1.20	+1%									
Burner		Express	Chest → belt	Non-splitter	1.17	-1%	1.18	1.18										
Burner Burner		Express Express	Chest → belt Running belt items → chest	Splitter Straight side near lane	1.17 0.88	-1%	1.18	1.18	+2%									
Burner		Express	Running belt items → chest Running belt items → chest		1.00		1.00	1.00	r276									
Burner	2	Express	Running belt items → chest	Straight, side, both lanes	0.78	-1%	0.79	0.88	+11%									
Burner Burner		Express	-	Straight, side, sideloaded onto empty belt	1.00	001	1.00	1.00	.400									
Burner		Express Express	Running belt items → chest Running belt items → chest		0.71	-9% -5%	0.78											
Burner		Express	Running belt items → chest	Turn, both lanes	0.71	-17%	0.86	1.00	+16%									
Burner	2	Express		Underground, side, one lane	1.05	-5%	1.10	1.15										
Burner	2	Express Express		Underground, side, both lanes Underground, front, one lane	1.07 0.83	-4%	1.11 0.83	1.15 0.83	+4%									
Burner	2	Express		Underground, behind, one lane	0.83		0.83	0.83										
Burner	2	Express		Underground, front/behind, both lanes	0.83		0.83	0.83										
Burner		Express Express		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	0.88 1.25	-2% -1%	0.90 1.26	1.00	+11%									
Burner		Express		Splitter, side, one lane, nonblocked exit	1.00	.,,	1.00	1.00										
Burner	2	Express		Splitter, front/behind, one lane, blocked exit	1.11	-3%	1.14	1.18	+4%									
Burner Burner		Express Express		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	1.29 0.93	-6%	1.29 0.99	1.29	+1%									
Burner		Express		Splitter, front/behind, both lanes, blocked exit	1.11	-3%	1.14	1.18	+4%									
Burner	2	Express	Queued belt items $\rightarrow$ chest	Straight, side, near lane	1.17	-1%	1.18	1.18										
Burner		Express	Queued belt items → chest		1.16	-1%	1.17	1.17										
Burner Burner		Express Express	Queued belt items → chest Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	1.17	-1% -3%	1.18	1.18	+2%									
Burner		Express	Queued belt items → chest		1.12		1.12	1.12										
Burner		Express		Straight, towards, both lanes	1.12		1.12	1.12										
Burner	2	Express Express	Queued belt items → chest Queued belt items → chest		1.09	-5% -4%	1.15	1.22	+6% +5%									
Burner	2	Express	Queued belt items → chest		1.09	-8%	1.18	1.26	+7%									
Burner	2	Express		Underground, side, one lane	1.16	-5%	1.22	1.29	+6%									
Burner Burner	2	Express Express		Underground, side, both lanes Underground, front, one lane	1.17	-5% -3%	1.23	1.29	+5%									
Burner		Express		Underground, behind, one lane	1.11		1.11	1.11										
Burner		Express		Underground, front/behind, both lanes	1.11	-2%	1.13	1.18	+4%									
Burner		Express Express		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	1.11	-5% -1%	1.17	1.25	+7%									
Burner		Express		Splitter, front/behind, one lane, blocked exit	1.11	-3%	1.14	1.18	+4%									
Burner		Express		Splitter, side, both lanes, blocked exit	1.29		1.29	1.29										
Burner Burner	2	Express Fast		Splitter, front/behind, both lanes, blocked exit Non-splitter	1.11	-3% -1%	1.14	1.18	+4%									
Burner	2	Fast		Splitter	1.17	-1%	1.18	1.18										
Burner		Fast	Running belt items → chest		0.96	-5%	1.01	1.07	+6%									
Burner		Fast	Running belt items → chest		1.09	-4% 5%	1.14	1.20	+5% +6%									
Burner Burner		Fast Fast	Running belt items → chest Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	0.96 1.03	-5% -5%	1.01	1.07										
Burner	2	Fast	Running belt items $\rightarrow$ chest	Turn, outer lane	1.07		1.07	1.07										
Burner	2	Fast	Running belt items → chest		1.03	-4%	1.07	1.11	+4%									
Burner Burner	2	Fast Fast	Running belt items → chest Running belt items → chest	Turn, both lanes Underground, side, one lane	1.03	-4% -3%	1.07	1.11	+4%									
Burner	2	Fast	Running belt items → chest	Underground, side, both lanes	1.11	-3%	1.15	1.20	+4%									
Burner	2	Fast		Underground, front, one lane	1.07	-1%	1.08	1.11	+3%									
Burner Burner	2	Fast Fast		Underground, behind, one lane Underground, front/behind, both lanes	1.07	-3% -2%	1.10	1.11	+1%									
Burner	2	Fast		Underground, sideloaded onto empty belt	0.96	-6%	1.02	1.11	+9%									
Burner	2	Fast	Running belt items $\rightarrow$ chest	Splitter, side, one lane, blocked exit	1.25	-1%	1.26	1.29	+2%									
Burner		Fast Fast		Splitter, side, one lane, nonblocked exit Splitter, front/behind, one lane, blocked exit	1.11	-1% -3%	1.12	1.15	+3%									
Burner		Fast		Splitter, iron/benind, one lane, blocked exit Splitter, side, both lanes, blocked exit	1.11	376	1.14	1.18	- 470									
Burner		Fast		Splitter, side, both lanes, nonblocked exit	1.03	-6%	1.09											
Burner Burner		Fast Fast	Running belt items → chest Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit Straight side near lane	1.11	-3% -1%	1.14	1.18	+4%									
Burner		Fast	Queued belt items → chest		1.17	-1%	1.18	1.18										
Burner	2	Fast	Queued belt items → chest	Straight, side, both lanes	1.17	-1%	1.18	1.18										
Burner Burner	2	Fast Fast	Queued belt items → chest Queued belt items → chest	Straight, side, sideloaded onto empty belt	1.16	-2%	1.18	1.20	+2%									
Burner	2	Fast		Straight, towards, one lane Straight, towards, both lanes	1.12		1.12	1.12										
Burner	2	Fast	Queued belt items $\rightarrow$ chest	Turn, outer lane	1.09	-5%	1.15	1.22	+6%									
Burner	2	Fast	Queued belt items → chest		1.15	-4%	1.20	1.26	+5% +7%									
Burner Burner	2	Fast Fast	Queued belt items → chest Queued belt items → chest	Turn, both lanes Underground, side, one lane	1.09	-8% -5%	1.18	1.26	+7%									
Burner	2	Fast		Underground, side, both lanes	1.17	-5%	1.23	1.29	+5%									
Burner		Fast		Underground, front, one lane	1.11	-3%	1.14	1.18	+4%									
Burner Burner		Fast Fast		Underground, behind, one lane Underground, front/behind, both lanes	1.11	-2%	1.11	1.11	+4%									
Burner		Fast		Underground, sideloaded onto empty belt	1.11	-3%	1.13	1.18										
Burner		Fast	Queued belt items → chest	Splitter, side, one lane, blocked exit	1.25	-1%	1.26	1.29	+2%									
			Ougued helt items sheet	Splitter, front/behind, one lane, blocked exit	1.11	-3%	1.14	1.18	+4%	I			1			1		
Burner Burner		Fast Fast		Splitter, side, both lanes, blocked exit	1.29		1.29	1.29										

Inserter	Stack size	Belt	Setup Move type	Rolt tile type								Il belt phases [8]						ingle belt phase
Type Burner		Type Basic		Belt tile type Non-splitter	Min [11]	[12] -1%	Mean [13] 1.18	Max [14]	[15]	Min [16] [17]	Mean [18]	Max [19] [20]	Min [21] [22]	Mean [23]	Max [24] [25]	Min [26] [27]	Mean [28]	Max [29] [30]
Burner	2	Basic	Chest → belt	Splitter	1.17	-1%	1.18	1.18										
Burner		Basic	Running belt items $\rightarrow$ chest		1.00	-1%	1.01	1.03	+2%									
Burner Burner		Basic Basic	Running belt items → chest Running belt items → chest		1.07		1.07	1.07	+2%									
Burner		Basic		Straight, side, sideloaded onto empty belt	1.00	-4%	1.11	1.02										
Burner	2	Basic	Running belt items → chest		0.88	-8%	0.96	1.07	+11%									
Burner		Basic	Running belt items → chest		1.07	-4%	1.11	1.15										
Burner	2	Basic Basic	Running belt items → chest	Turn, both lanes Underground, side, one lane	0.88	-15% -3%	1.04	1.15	+11%									
Burner	2	Basic		Underground, side, both lanes	1.15	-5%	1.21	1.25	+3%									
Burner	2	Basic		Underground, front, one lane	1.15		1.15	1.15										
Burner	2	Basic Basic		Underground, behind, one lane	1.15		1.15	1.15										
Burner	2	Basic		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	1.15	-7%	1.15	1.15	+6%									
Burner	2	Basic		Splitter, side, one lane, blocked exit	1.25	-1%	1.26	1.29	+2%									
Burner	2	Basic		Splitter, side, one lane, nonblocked exit	1.15	-4%	1.20	1.25	+4%									
Burner	2	Basic Basic		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	1.11	-3%	1.14	1.18	+4%									
Burner		Basic		Splitter, side, both lanes, blocked exit	1.25		1.25	1.25										
Burner		Basic		Splitter, front/behind, both lanes, blocked exit	1.11	-3%	1.14	1.18	+4%									
Burner		Basic	Queued belt items → chest		1.17	-1%	1.18	1.18										
Burner Burner		Basic Basic	Queued belt items → chest Queued belt items → chest		1.16	-1% -1%	1.17	1.17										
Burner		Basic		Straight, side, sideloaded onto empty belt	1.16	-3%	1.19	1.21	+2%									
Burner	2	Basic	Queued belt items $\rightarrow$ chest	Straight, towards, one lane	1.12		1.12	1.12										
Burner		Basic		Straight, towards, both lanes	1.12	F0/	1.12	1.12	- 00/									
Burner	2	Basic Basic	Queued belt items → chest Queued belt items → chest		1.09	-5% -4%	1.15 1.20	1.22	+6%									
Burner		Basic	Queued belt items → chest		1.09	-8%	1.18	1.26	+7%									
Burner	2	Basic		Underground, side, one lane	1.16	-5%	1.22	1.29	+6%									
Burner Burner	2	Basic Basic		Underground, side, both lanes Underground, front, one lane	1.17	-5% -3%	1.23	1.29	+5%									
Burner		Basic		Underground, front, one lane	1.12	-576	1.15	1.18	- 570									
Burner		Basic		Underground, front/behind, both lanes	1.11	-2%	1.13	1.18										
Burner		Basic Basic		Underground, sideloaded onto empty belt	1.13	-3% -1%	1.17	1.25	+7%									
Burner		Basic Basic		Splitter, side, one lane, blocked exit Splitter, front/behind, one lane, blocked exit	1.25	-1%	1.26	1.18	+2%									
Burner		Basic		Splitter, side, both lanes, blocked exit	1.29	- 73	1.29	1.29	. 73									
Burner		Basic		Splitter, front/behind, both lanes, blocked exit	1.11	-3%	1.14	1.18	+4%									
Stack	2	Express	Chest → chest Chest → belt	Non-splitter	4.61 4.44		4.61 4.44	4.61										
Stack		Express Express		Non-splitter Splitter	4.44		4.44	4.44										
Stack		Express	Running belt items → chest		4.28		4.28	4.28										
Stack		Express	Running belt items → chest	*	4.28		4.28	4.29										
Stack	2	Express Express	Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	4.28 3.75		4.28 3.75	4.28 3.75										
Stack	2	Express	Running belt items → chest		3.75		3.75	3.75										
Stack	2	Express	Running belt items → chest		3.46	-4%	3.60	3.75	+4%									
Stack	2	Express	Running belt items → chest		3.75		3.75	3.75										
Stack	2	Express Express		Underground, side, one lane Underground, side, both lanes	3.75 4.09	-9% -4%	4.13 4.25	4.50 4.41	+9%									
Stack		Express		Underground, front, one lane	3.75	-470	3.75	3.75	-470									
Stack	2	Express	Running belt items $\rightarrow$ chest	Underground, behind, one lane	3.75		3.75	3.75										
Stack		Express		Underground, front/behind, both lanes	3.75		3.75	3.75										
Stack		Express Express		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	3.00 4.61	-9%	3.28 4.61	3.75 4.61	+14%									
Stack		Express		Splitter, side, one lane, nonblocked exit	3.75		3.75	3.75										
Stack		Express		Splitter, front/behind, one lane, blocked exit	4.13	-2%	4.21	4.28	+2%									
Stack		Express Express		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	4.61 3.52	-5%	4.61 3.69	4.61 3.75	+2%									
Stack		Express		Splitter, front/behind, both lanes, blocked exit	4.13	-2%		4.28	+2%									
Stack	2	Express	Queued belt items → chest	Straight, side, near lane	4.28		4.28	4.28										
Stack	2	Express	Queued belt items → chest	•	4.44		4.44	4.44										
Stack	2	Express Express	Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	4.28 4.44	-2%	4.28 4.52	4.28 4.61	+2%									
Stack	2	Express	Queued belt items → chest		4.13	2,0	4.13	4.13	- 270									
Stack	2	Express		Straight, towards, both lanes	4.13		4.13	4.13										
Stack	2	Express Express	Queued belt items → chest Queued belt items → chest		4.00 4.28	-7% -5%	4.28 4.50	4.61 4.80	+8%									
Stack		Express	Queued belt items → chest		4.28	-9%	4.39	4.80	+9%									
Stack	2	Express	Queued belt items → chest	Underground, side, one lane	4.28	-4%	4.48	4.61	+3%									
Stack		Express		Underground, side, both lanes	4.28	-4% -2%	4.44	4.61	+4%									
Stack		Express Express		Underground, front, one lane Underground, behind, one lane	4.13 4.13	-2%	4.21 4.13	4.28 4.13	+2%									
Stack		Express		Underground, front/behind, both lanes	4.13	-1%	4.18	4.28	+2%									
Stack		Express		Underground, sideloaded onto empty belt	4.13	-5%	4.36	4.61	+6%									
Stack Stack		Express Express		Splitter, side, one lane, blocked exit Splitter, front/behind, one lane, blocked exit	4.61 4.13	-2%	4.61 4.21	4.61 4.28	+2%									
Stack		Express		Splitter, front/behind, one lane, blocked exit  Splitter, side, both lanes, blocked exit	4.13	-270	4.21	4.28	r2%									
Stack		Express		Splitter, front/behind, both lanes, blocked exit	4.13	-2%		4.28	+2%									
Stack	2	Fast		Non-splitter	4.44		4.44	4.44										
Stack	2	Fast Fast	Chest → belt Running belt items → chest	Splitter Straight, side, near lane	4.44 3.75		4.44 3.75	4.44 3.75										
Stack	2	Fast	Running belt items → chest		3.75	-3%		4.00	+3%									
Stack	2	Fast	Running belt items → chest		3.75		3.75	3.75										
Stack Stack	2	Fast Fast	Running belt items → chest Running belt items → chest	Straight, side, sideloaded onto empty belt	3.75	-6% -5%	4.00 3.52	4.28 3.75	+7%									
Stack	2	Fast Fast	Running belt items → chest Running belt items → chest		3.33	-5% -5%	3.52	4.28	+7%									
Stack	2	Fast	Running belt items $\rightarrow$ chest	Turn, both lanes	3.33	-11%	3.73	4.28										
Stack	2	Fast		Underground, side, one lane	3.75		4.23 4.27	4.61	+9%									
Stack Stack	2	Fast Fast		Underground, side, both lanes Underground, front, one lane	3.75	-12% -6%	4.27	4.61 4.28										
Stack		Fast		Underground, behind, one lane	3.75			4.28										
Stack	2	Fast	Running belt items $\rightarrow$ chest	Underground, front/behind, both lanes	3.75	-5%	3.93	4.28	+9%									
Stack Stack		Fast		Underground, sideloaded onto empty belt	3.33	-7%	3.58 4.61	3.75 4.61	+5%									
Stack		Fast Fast		Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	4.61 3.75	-9%	4.61	4.61	+4%									
Stack		Fast	Running belt items → chest	Splitter, front/behind, one lane, blocked exit	4.13	-2%	4.21	4.28										
Stack		Fast		Splitter, side, both lanes, blocked exit	4.61		4.61	4.61										
Stack Stack		Fast		Splitter, side, both lanes, nonblocked exit	3.33			4.28										
Stack	2	Fast Fast	Running belt items → chest Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit Straight, side, near lane	4.13 4.28	-2%	4.21 4.28	4.28 4.28	+2%									
Stack	2	Fast	Queued belt items → chest		4.44		4.44	4.44										
Stack	2	Fast	Queued belt items → chest		4.28		4.28	4.28										
Stack	2	Fast Fast		Straight, side, sideloaded onto empty belt Straight, towards, one lane	4.44		4.44	4.44										
		Fast Fast	Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	4.13		4.13	4.13										

Inserter		Belt	Setup Move type	Belt tile type			all directions, a Mean [13]	Max [14]				III belt phases [8]				Dito, north→so		ingle belt phase
Type Stack	Stack size	Type Fast	Move type  Queued belt items → chest		Min [11] 4.00	[12] -7%	Mean [13] 4.28	Max [14]		wiii [10] [1/]	weatt [18]	Max [19] [20]	wiii [21] [22]	wea⊓ [∠3]	Max [24] [25]	WIII [20] [27]	wea⊓ [∠8]	max [29] [30]
Stack	2	Fast	Queued belt items → chest		4.28	-5%	4.50	4.80	+7%									
Stack Stack		Fast Fast	Queued belt items → chest Queued belt items → chest	Turn, both lanes Underground, side, one lane	4.00 4.28	-9% -4%	4.39 4.48	4.80 4.61	+9%									
Stack		Fast		Underground, side, both lanes	4.28	-4%	4.44	4.61	+4%									
Stack		Fast		Underground, front, one lane	4.13	-2%	4.21	4.28	+2%									
Stack Stack		Fast Fast		Underground, behind, one lane Underground, front/behind, both lanes	4.13 4.13	-1%	4.13 4.18	4.13	+2%									
Stack		Fast		Underground, sideloaded onto empty belt	4.21	-3%	4.36	4.61	+6%									
Stack	2	Fast		Splitter, side, one lane, blocked exit	4.61		4.61	4.61										
Stack	2	Fast Fast		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	4.13 4.61	-2%	4.21 4.61	4.28	+2%									
Stack	2	Fast		Splitter, front/behind, both lanes, blocked exit	4.13	-2%	4.01	4.28	+2%									
Stack	2	Basic		Non-splitter	4.44		4.44	4.44										
Stack Stack	2	Basic Basic	Chest → belt Running belt items → chest	Splitter	4.44		4.44	4.44										
Stack		Basic	Running belt items → chest	*	4.28		4.28	4.29										
Stack		Basic	Running belt items → chest	Straight, side, both lanes	4.28		4.28	4.28										
Stack Stack		Basic Basic	Running belt items → chest Running belt items → chest	Straight, side, sideloaded onto empty belt	3.75 3.91	-4% -4%	3.91 4.09	4.09 4.28	+5%									
Stack		Basic	Running belt items → chest		4.28	-470	4.09	4.28	TO 76									
Stack	2	Basic	Running belt items → chest		3.91	-6%	4.18	4.28	+2%									
Stack Stack	2	Basic Basic		Underground, side, one lane Underground, side, both lanes	4.28 4.28	-3% -3%	4.39	4.50 4.50	+3%									
Stack		Basic		Underground, front, one lane	3.75	-370	3.75	3.75	T376									
Stack	2	Basic	Running belt items → chest	Underground, behind, one lane	3.75		3.75	3.75										
Stack	2	Basic		Underground, front/behind, both lanes	3.75	450/	3.75	3.75	. 70/									
Stack	2	Basic Basic		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	3.00 3.75	-15%	3.52 3.75	3.75 3.75	+7%									
Stack	2	Basic	Running belt items → chest	Splitter, side, one lane, nonblocked exit	3.75		3.75	3.75										
Stack	2	Basic		Splitter, front/behind, one lane, blocked exit	3.75		3.75	3.75										
Stack	2	Basic Basic		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	4.50 3.00	-17%	4.50 3.63	4.51 3.75	+3%									
Stack	2	Basic	Running belt items → chest	Splitter, front/behind, both lanes, blocked exit	4.23	-2%	4.30	4.37	+2%									
Stack		Basic	Queued belt items → chest	3 , ,	4.28		4.28	4.28										
Stack		Basic Basic	Queued belt items → chest Queued belt items → chest		4.44		4.44	4.44										
Stack	2	Basic	Queued belt items → chest	Straight, side, sideloaded onto empty belt	4.44		4.44	4.44										
Stack		Basic	Queued belt items → chest		4.13		4.13	4.13										
Stack Stack		Basic Basic	Queued belt items → chest Queued belt items → chest	Straight, towards, both lanes Turn, outer lane	4.13	-7%	4.13 4.28	4.13 4.61	+8%									
Stack		Basic	Queued belt items → chest		4.28	-5%	4.50	4.80	+7%									
Stack		Basic	Queued belt items → chest		4.00	-9%	4.39	4.80	+9%									
Stack		Basic Basic		Underground, side, one lane Underground, side, both lanes	4.28 4.28	-4% -4%	4.48	4.61 4.61	+3%									
Stack		Basic		Underground, front, one lane	4.13	-2%	4.21	4.28	+2%									
Stack	2	Basic		Underground, behind, one lane	4.13		4.13	4.13										
Stack	2	Basic Basic		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	4.13 4.13	-1% -4%	4.18	4.28	+2%									
Stack	2	Basic		Splitter, side, one lane, blocked exit	4.61	-470	4.61	4.61	T1 70									
Stack	2	Basic	Queued belt items → chest	Splitter, front/behind, one lane, blocked exit	4.13	-2%	4.21	4.28	+2%									
Stack Stack	2 2	Basic Basic		Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	4.61 4.13	-2%	4.61 4.21	4.61 4.28	+2%									
Fast	1	Basic	Chest → chest	Splitter, front/bening, both lanes, blocked exit	2.30	-2%	2.30	2.30	+2%									
Fast	1	Express		Non-splitter	2.30		2.30	2.30										
Fast		Express		Splitter Ottober older over less	2.30	F0/	2.30	2.30	+6%									
Fast Fast		Express Express	Running belt items → chest Running belt items → chest		2.25	-5%	2.36	2.50	+6%									
Fast		Express	Running belt items → chest		2.25	-6%	2.40	2.50	+4%									
Fast		Express		Straight, side, sideloaded onto empty belt	1.87	-7%	2.00	2.14	+7%									
Fast Fast		Express Express	Running belt items → chest Running belt items → chest		2.04 1.87		2.04 1.87	2.04										
Fast	1	Express	Running belt items → chest		1.87	-2%	1.91		+7%									
Fast	1	Express		Underground, side, one lane	2.04	-7%	2.19	2.36	+8%									
Fast Fast	1	Express Express		Underground, side, both lanes Underground, front, one lane	2.04 1.87	-7%	2.19 1.87	2.34 1.87	+7%									
Fast	1	Express		Underground, behind, one lane	1.87		1.87	1.87										
Fast	1	Express		Underground, front/behind, both lanes	1.87		1.87	1.87										
Fast Fast	1	Express Express		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	1.73	-5%	1.83	1.87	+2%									
Fast		Express		Splitter, side, one lane, nonblocked exit	1.87	-5%	1.97	2.08	+6%									
Fast		Express		Splitter, front/behind, one lane, blocked exit	2.40		2.40	2.40										
Fast Fast		Express Express		Splitter, side, both lanes, blocked exit Splitter, side, both lanes, nonblocked exit	2.40		2.40	2.40										
Fast		Express		Splitter, front/behind, both lanes, blocked exit			2.40	2.40										
Fast		Express	Queued belt items → chest		2.40		2.40	2.40										
Fast Fast		Express Express	Queued belt items → chest Queued belt items → chest		2.40		2.40	2.40										
Fast		Express		Straight, side, sideloaded onto empty belt		-3%		2.40	+4%									
Fast	1	Express	Queued belt items → chest	Straight, towards, one lane	2.40		2.40	2.40										
Fast Fast		Express	Queued belt items → chest Queued belt items → chest	Straight, towards, both lanes	2.40	-2%	2.40 2.46	2.40	+6%									
Fast		Express Express	Queued belt items → chest Queued belt items → chest		2.40 2.40	-2%	2.46	2.60	+6%									
Fast	1	Express	Queued belt items → chest	Turn, both lanes	2.40	-2%	2.46	2.60	+6%									
Fast	1	Express		Underground, side, one lane	2.40		2.40	2.40										
Fast Fast	1	Express Express		Underground, side, both lanes Underground, front, one lane	2.40		2.40	2.40										
Fast	1	Express	Queued belt items → chest	Underground, behind, one lane	2.40		2.40	2.40										
Fast		Express		Underground, front/behind, both lanes	2.40	-	2.40	2.40	+1%									
Fast Fast		Express Express		Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	2.30	-3%	2.37	2.40	+1%									
Fast		Express		Splitter, front/behind, one lane, blocked exit	2.40		2.40	2.40										
Fast		Express		Splitter, side, both lanes, blocked exit	2.40		2.40	2.40										
Fast Fast		Express Fast		Splitter, front/behind, both lanes, blocked exit Non-splitter	2.40		2.40	2.40										
Fast		Fast		Splitter	2.30		2.30	2.30										
Fast		Fast	Running belt items → chest		2.14		2.14	2.14										
Fast Fast		Fast Fast	Running belt items → chest Running belt items → chest		2.14 2.14		2.14	2.14										
Fast		Fast		Straight, side, sideloaded onto empty belt	2.14		2.14	2.14										
Fast	1	Fast	Running belt items → chest	Turn, outer lane	2.00	-5%		2.22	+6%									
Fast Fast	1	Fast Fast	Running belt items → chest Running belt items → chest		2.14	-6%	2.14 2.12	2.14	_F0/									
Fast	1	Fast		Underground, side, one lane	2.00	-6%		2.22										
Fast	1	Fast	Running belt items → chest	Underground, side, both lanes	2.14	-7%	2.30	2.50	+9%									
Fast	1	Fast Fast		Underground, front, one lane Underground, behind, one lane	2.14 2.14	-2% -5%		2.30										
Fast	1					-5%	2.26	2.30	+2%	1			1					

Inserter Type	Stack s	Belt ize Typ		Setup Move type	Belt tile type			all directions, Mean [13]	all belt phas Max [14]			Max [19] [20]			belt phases [9] Max [24] [25]	Dito, north→so Min [26] [27]	ingle belt phase Max [29] [30]
Fast	1	Fas	it I	Running belt items → chest	Underground, sideloaded onto empty belt	1.87	-8%	2.03	2.14		[]	 (, [2-1]	[, [,	[]	(= 1, (= 2)	[=-, [=-,	 
Fast Fast	1	Fas			Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	2.40	-4%	2.40	2.40	+4%							
Fast	1	Fas			Splitter, front/behind, one lane, blocked exit	2.40	-470	2.40	2.40	1470							
Fast	1	Fas	-		Splitter, side, both lanes, blocked exit	2.40		2.40	2.40								
Fast Fast	1	Fas			Splitter, side, both lanes, nonblocked exit Splitter, front/behind, both lanes, blocked exit	2.30		2.30	2.30								
Fast	1	Fas	it (	Queued belt items → chest	Straight, side, near lane	2.40		2.40	2.40								
Fast	1	Fas		Queued belt items chest	•	2.40		2.40	2.40								
Fast Fast	1	Fas		Queued belt items → chest Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	2.40	-3%	2.40	2.40	+4%							
Fast	1	Fas	it (	Queued belt items $\rightarrow$ chest	Straight, towards, one lane	2.40		2.40	2.40								
Fast Fast	1	Fas		Queued belt items → chest Queued belt items → chest	Straight, towards, both lanes	2.40	-2%	2.40	2.40	.00/							
Fast	1	Fas		Queued belt items → chest		2.40	-2%	2.46	2.60	+6%							
Fast	1	Fas		Queued belt items $\rightarrow$ chest		2.40	-2%	2.46	2.60	+6%							
Fast Fast	1	Fas			Underground, side, one lane	2.40		2.40	2.40								
Fast	1	Fas			Underground, side, both lanes Underground, front, one lane	2.40		2.40	2.40								
Fast	1	Fas			Underground, behind, one lane	2.40		2.40	2.40								
Fast Fast	1	Fas			Underground, front/behind, both lanes Underground, sideloaded onto empty belt	2.40	-3%	2.40	2.40	+1%							
Fast	1	Fas			Splitter, side, one lane, blocked exit	2.40	0,0	2.40	2.40	- 170							
Fast	1	Fas			Splitter, front/behind, one lane, blocked exit	2.40		2.40	2.40								
Fast Fast	1	Fas			Splitter, side, both lanes, blocked exit Splitter, front/behind, both lanes, blocked exit	2.40		2.40	2.40								
Fast	1	Bas			Non-splitter	2.30		2.30	2.30								
Fast	1	Bas			Splitter Straight side near lane	2.30 2.25		2.30 2.25	2.30 2.25								
Fast Fast	1	Bas		Running belt items $\rightarrow$ chest Running belt items $\rightarrow$ chest		2.25		2.25	2.25								
Fast	1	Bas	sic I	Running belt items → chest	Straight, side, both lanes	2.25		2.25	2.25								
Fast Fast	1	Bas	-	Running belt items → chest Running belt items → chest	Straight, side, sideloaded onto empty belt	2.25	-5%	2.38	2.50 2.25	+5%			-				
Fast	1	Bas	_	Running belt items → chest Running belt items → chest		2.22	-4%	2.23	2.25	+1%							
Fast	1	Bas	sic I	Running belt items → chest	Turn, both lanes	2.22	-2%	2.27	2.30	+1%							
Fast Fast	1	Bas	-		Underground, side, one lane Underground, side, both lanes	2.25 2.50	-7%	2.43 2.50	2.50	+3%							
Fast	1	Bas	sic I	Running belt items $\rightarrow$ chest	Underground, front, one lane	2.25		2.25	2.25								
Fast	1	Bas	sic I	Running belt items → chest	Underground, behind, one lane	2.25		2.25	2.25								
Fast Fast	1	Bas	_		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	2.25	-7%	2.25	2.25	+14%							
Fast	1	Bas	-		Splitter, side, one lane, blocked exit	2.40		2.40	2.40	-1470							
Fast	1	Bas			Splitter, side, one lane, nonblocked exit	2.50		2.50	2.50								
Fast Fast	1	Bas			Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	2.40		2.40	2.40				1				
Fast	1	Bas			Splitter, side, both lanes, nonblocked exit	2.50		2.50	2.50								
Fast	1	Bas			Splitter, front/behind, both lanes, blocked exit	2.40		2.40	2.40								
Fast Fast	1	Bas		Queued belt items → chest Queued belt items → chest		2.40		2.40	2.40								
Fast	1	Bas	_	Queued belt items → chest		2.40		2.40	2.40								
Fast Fast	1	Bas	-		Straight, side, sideloaded onto empty belt	2.22	-3%	2.30 2.40	2.40	+4%							
Fast	1	Bas	_	Queued belt items → chest Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	2.40		2.40	2.40								
Fast	1	Bas		Queued belt items $\rightarrow$ chest		2.40	-2%	2.46	2.60	+6%							
Fast Fast	1	Bas		Queued belt items → chest Queued belt items → chest		2.40	-2% -2%	2.46 2.46	2.60	+6%							
Fast	1	Bas	_		Underground, side, one lane	2.40	-270	2.40	2.40	TO 76							
Fast	1	Bas	_		Underground, side, both lanes	2.40		2.40	2.40								
Fast Fast	1	Bas	_		Underground, front, one lane Underground, behind, one lane	2.40		2.40	2.40								
Fast	1	Bas	-		Underground, front/behind, both lanes	2.40		2.40	2.40								
Fast Fast	1	Bas			Underground, sideloaded onto empty belt	2.30	-3%	2.37	2.40	+1%							
Fast Fast	1	Bas			Splitter, side, one lane, blocked exit Splitter, front/behind, one lane, blocked exit	2.40 2.40		2.40	2.40								
Fast	1	Bas			Splitter, side, both lanes, blocked exit	2.40		2.40	2.40								
Fast Long-handed	1	Bas	_	Queued belt items → chest Chest → chest	Splitter, front/behind, both lanes, blocked exit	2.40 1.17	-1%	2.40 1.18	2.40 1.20	+2%							
Long-handed	1	Exp			Non-splitter	1.17	-1%	1.18	1.20	+2%							
Long-handed					Splitter	1.17	-1%	1.18	1.20								
Long-handed Long-handed		Exp		Running belt items → chest Running belt items → chest		1.09		1.09	1.11	+2%							
Long-handed	1		ress	Running belt items → chest	Straight, side, both lanes	1.11		1.11	1.11								
Long-handed					Straight, side, sideloaded onto empty belt	0.93	-9%	1.02	1.12	+10%							
Long-handed Long-handed		Exp		Running belt items → chest Running belt items → chest	Straight, towards, one lane Straight, towards, both lanes	0.83		0.83	0.83								
Long-handed	1	Exp	ress	Running belt items → chest	Turn, outer lane	0.93	-8%	1.01	1.12	+11%							
Long-handed Long-handed				Running belt items → chest Running belt items → chest		0.93	-4% -4%	0.97	1.07	+15%							
Long-handed Long-handed		Exp			Underground, side, one lane	1.07	-4% -2%	1.09	1.12								
Long-handed	1	Exp	ress	Running belt items → chest	Underground, side, both lanes	1.07	-2%	1.09	1.11	+2%							
Long-handed Long-handed		Exp			Underground, front, one lane Underground, behind, one lane	0.93	-7% -7%	1.00	1.07	+7%			-				
Long-handed Long-handed					Underground, benind, one lane Underground, front/behind, both lanes	0.93	-7%	1.00	1.07	+7%							
Long-handed	1		ress	Running belt items → chest	Underground, sideloaded onto empty belt	0.88	-3%	0.91	0.93	+2%							
Long-handed Long-handed					Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	1.17 0.96	-3% -2%	1.20 0.98	1.22	+2%			-				
Long-handed Long-handed			ress	Running belt items $\rightarrow$ chest	Splitter, front/behind, one lane, blocked exit	1.17	-3%	1.20	1.00	+2%							
Long-handed					Splitter, side, both lanes, blocked exit	1.22		1.22	1.22								
Long-handed Long-handed					Splitter, side, both lanes, nonblocked exit Splitter, front/behind, both lanes, blocked exit	0.97	-2% -3%		1.00	+1%							
Long-handed			ress	Queued belt items → chest	Straight, side, near lane	1.22	- 73	1.22	1.22								
Long-handed				Queued belt items chest		1.17		1.17	1.17								
Long-handed Long-handed				Queued belt items → chest Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	1.22	-3%	1.22	1.22	+3%							
Long-handed	1	Exp	ress	Queued belt items $\rightarrow$ chest	Straight, towards, one lane	1.17	- 73	1.17	1.17								
Long-handed					Straight, towards, both lanes	1.17	20/	1.17	1.17	+1%							
Long-handed Long-handed		Exp		Queued belt items → chest Queued belt items → chest		1.17	-3% -2%	1.21	1.22	+1%							
Long-handed	1	Exp	ress	Queued belt items $\rightarrow$ chest	Turn, both lanes	1.17	-3%	1.21	1.22	+1%							
Long-handed		Exp			Underground, side, one lane	1.17	-3%	1.21	1.22	+1%							
Long-handed Long-handed					Underground, side, both lanes Underground, front, one lane	1.22	-3%	1.22	1.22	+2%							
Long-handed	1	Exp	ress	Queued belt items $\rightarrow$ chest	Underground, behind, one lane	1.17	-3%	1.20	1.22	+2%							
Long-handed					Underground, front/behind, both lanes	1.17	-3%	1.20	1.22	+2%							
Long-handed Long-handed					Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	1.17	-2% -3%	1.19	1.22	+3%							
Long-handed	1	Exp	ress	Queued belt items → chest	Splitter, front/behind, one lane, blocked exit	1.17	-3%	1.20	1.22	+2%							
Long-handed		Evn	ress	Queued belt items → chest	Splitter, side, both lanes, blocked exit	1.22		1.22	1.22								

Inserter		Belt	Setup		Items/se	cond, a	all directions, a	all belt phas	es [7]	Dito, north→so	uth direction, al	l belt phases [8]	Dito, west→ea	st direction, all b	pelt phases [9]	Dito, north→so	uth direction, si	ingle belt phase
J	Stack size	7.	Move type	Belt tile type	Min [11]		Mean [13]	Max [14]		Min [16] [17]	Mean [18]	Max [19] [20]	Min [21] [22]	Mean [23]	Max [24] [25]	Min [26] [27]	Mean [28]	Max [29] [30]
Long-handed Long-handed	1	Express Fast		Splitter, front/behind, both lanes, blocked exit Non-splitter	1.17	-3% -1%	1.20	1.22	+2%									
Long-handed	1	Fast	Chest → belt	Splitter	1.17	-1%	1.18	1.20	+2%									
Long-handed	1	Fast	Running belt items $\rightarrow$ chest		1.07	-1%	1.08	1.15										
Long-handed Long-handed	1	Fast Fast	Running belt items → chest Running belt items → chest		1.13	-1% -1%	1.14	1.15	_									
Long-handed	1	Fast		Straight, side, sideloaded onto empty belt	1.07	-2%	1.09	1.12	+3%									
Long-handed	1	Fast	Running belt items $\rightarrow$ chest	Straight, towards, one lane	0.93		0.93	0.93										
Long-handed	1	Fast		Straight, towards, both lanes	0.93	440/	0.93	0.93	. 400/									
Long-handed Long-handed	1	Fast Fast	Running belt items → chest Running belt items → chest		1.00	-11% -5%	1.05	1.15	+16%									
Long-handed	1	Fast	Running belt items → chest		0.88	-14%	1.02		+13%									
Long-handed	1	Fast		Underground, side, one lane	1.07	-5%	1.13	1.15	+2%									
Long-handed	1	Fast Fast		Underground, side, both lanes	1.07	-6% -7%	1.14	1.15	+1%									
Long-handed Long-handed	1	Fast		Underground, front, one lane Underground, behind, one lane	1.00	-7%	1.07	1.15	+7%									
Long-handed	1	Fast		Underground, front/behind, both lanes	1.00	-7%	1.07	1.15	+7%									
Long-handed	1	Fast		Underground, sideloaded onto empty belt	1.00	-2%	1.02	1.07	+5%									
Long-handed Long-handed	1	Fast Fast		Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	1.17	-3%	1.20	1.22	+2%									
Long-handed	1	Fast		Splitter, front/behind, one lane, blocked exit	1.17	-3%	1.20	1.22	+2%									
Long-handed	1	Fast		Splitter, side, both lanes, blocked exit	1.22		1.22	1.22										
Long-handed	1	Fast		Splitter, side, both lanes, nonblocked exit	1.07		1.07	1.07										
Long-handed Long-handed	1	Fast Fast	Running belt items → chest Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit	1.17	-3%	1.20 1.22	1.22	+2%									
Long-handed	1	Fast	Queued belt items → chest	•	1.17		1.17	1.17										
Long-handed	1	Fast	Queued belt items → chest		1.22		1.22	1.22										
Long-handed	1	Fast		Straight, side, sideloaded onto empty belt	1.17	-1%	1.18	1.22	+3%									
Long-handed Long-handed	1	Fast Fast	Queued belt items → chest Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	1.17		1.17	1.17										
Long-handed	1	Fast	Queued belt items → chest		1.17	-3%	1.21	1.22	+1%									
Long-handed	1	Fast	Queued belt items → chest	Turn, inner lane	1.17	-3%	1.21	1.22	+1%									
Long-handed	1	Fast Fast	Queued belt items → chest		1.17	-3% -3%	1.21	1.22	+1%									
Long-handed Long-handed	1	Fast		Underground, side, one lane Underground, side, both lanes	1.17	-3%	1.20	1.22	+∠%									
Long-handed	1	Fast	Queued belt items → chest	Underground, front, one lane	1.17	-3%	1.20	1.22	+2%									
Long-handed	1	Fast		Underground, behind, one lane	1.17	-3%	1.20	1.22	+2%									
Long-handed Long-handed	1	Fast Fast		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	1.17	-3% -2%	1.20	1.22	+2%									
Long-handed Long-handed	1	Fast			1.17	-2%	1.19	1.22	+3%									
Long-handed	1	Fast	Queued belt items → chest	Splitter, front/behind, one lane, blocked exit	1.17	-3%	1.20	1.22	+2%									
Long-handed	1	Fast		Splitter, side, both lanes, blocked exit	1.22	4	1.22	1.22										
Long-handed Long-handed	1	Fast Basic		Splitter, front/behind, both lanes, blocked exit Non-splitter	1.17	-3% -1%	1.20	1.22	+2%									
Long-handed	1	Basic		Splitter	1.17	-1%	1.18	1.20	+2%									
Long-handed	1	Basic	Running belt items $\rightarrow$ chest	Straight, side, near lane	1.07	-4%	1.11	1.15	+4%									
Long-handed	1	Basic	Running belt items → chest		1.15		1.15	1.15										
Long-handed Long-handed	1	Basic Basic	Running belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	1.07	-2%	1.09	1.15	+6%									
Long-handed	1	Basic		Straight, towards, one lane	1.22		1.22	1.22										
Long-handed	1	Basic		Straight, towards, both lanes	1.22		1.22	1.22										
Long-handed	1	Basic Basic	Running belt items → chest Running belt items → chest		1.15	-5%	1.15	1.15	+4%									
Long-handed Long-handed	1	Basic	Running belt items → chest		1.07	-6%	1.13	1.18	+4%									
Long-handed	1	Basic		Underground, side, one lane	1.15	-3%	1.18	1.25	+6%									
Long-handed	1	Basic		Underground, side, both lanes	1.15	-4%	1.20	1.25	+4%									
Long-handed	1	Basic		Underground, front, one lane	1.15	-2%	1.17	1.20	+3%									
Long-handed Long-handed	1	Basic Basic		Underground, behind, one lane Underground, front/behind, both lanes	1.15	-1%	1.15	1.18	+3%									
Long-handed	1	Basic	Running belt items $\rightarrow$ chest	Underground, sideloaded onto empty belt	1.07	-3%	1.10	1.15	+5%									
Long-handed	1	Basic		Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	1.17	-3%	1.20	1.22	+2%									
Long-handed Long-handed	1	Basic Basic		Splitter, side, one lane, nonblocked exit  Splitter, front/behind, one lane, blocked exit	1.15	-1% -3%	1.16	1.18	+2%									
Long-handed	1	Basic		Splitter, side, both lanes, blocked exit	1.22	0,0	1.22	1.22										
Long-handed	1	Basic		Splitter, side, both lanes, nonblocked exit	1.15	-3%	1.18	1.18										
Long-handed	1	Basic		Splitter, front/behind, both lanes, blocked exit	1.17	-3%	1.20	1.22	+2%									
Long-handed Long-handed	1	Basic Basic	Queued belt items → chest Queued belt items → chest		1.22		1.22	1.22										
Long-handed	1	Basic	Queued belt items → chest		1.22		1.22	1.22										
Long-handed	1	Basic		Straight, side, sideloaded onto empty belt	1.15	-3%	1.18	1.22	+3%									
Long-handed Long-handed	1	Basic Basic	Queued belt items → chest	Straight, towards, one lane Straight, towards, both lanes	1.17		1.17	1.17										
Long-handed Long-handed	1	Basic	Queued belt items → chest Queued belt items → chest		1.17	-3%	1.17	1.17	+1%									
Long-handed	1	Basic	Queued belt items → chest	Turn, inner lane	1.20	-2%	1.22	1.22										
Long-handed	1	Basic	Queued belt items → chest		1.17	-3%		1.22	+1%									
Long-handed Long-handed	1	Basic Basic		Underground, side, one lane Underground, side, both lanes	1.17	-3%	1.21	1.22	+1%									
Long-handed	1	Basic		Underground, front, one lane	1.17	-3%	1.20	1.22	+2%									
Long-handed	1	Basic		Underground, behind, one lane	1.17	-3%	1.20	1.22	+2%									
Long-handed Long-handed	1	Basic Basic		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	1.17	-3% -2%	1.20	1.22	+2%									
Long-handed	1	Basic		Splitter, side, one lane, blocked exit	1.17	-3%	1.19	1.22	+2%									
Long-handed	1	Basic	Queued belt items $\rightarrow$ chest	Splitter, front/behind, one lane, blocked exit	1.17	-3%	1.20	1.22	+2%									
Long-handed	1	Basic		Splitter, side, both lanes, blocked exit	1.22	-	1.22	1.22										
Long-handed Basic	1	Basic	Queued belt items → chest Chest → chest	Splitter, front/behind, both lanes, blocked exit	1.17 0.83	-3%	1.20 0.83	1.22 0.83	+2%									
Basic	1	Express		Non-splitter	0.83		0.83	0.83										
Basic	1	Express		Splitter	0.83		0.83	0.83										
Basic Basic	1	Express	Running belt items → chest Running belt items → chest		0.68	-1%	0.68	0.68	+1%									
Basic	1	Express	Running belt items → chest Running belt items → chest		0.73	-176	0.74	0.75	< 17b									
Basic	1	Express		Straight, side, sideloaded onto empty belt	0.71	-5%	0.75	0.80	+7%									
Basic	1	Express	Running belt items → chest		0.62		0.62	0.62										
Basic Basic	1	Express Express	Running belt items → chest Running belt items → chest		0.68	-1% -7%	0.69	0.71	+3%									
Basic	1	Express		Underground, side, one lane	0.62	-7%	0.67	0.71	+6%									
Basic	1	Express	Running belt items $\rightarrow$ chest	Underground, side, both lanes	0.77	-4%	0.80	0.83	+4%									
Basic	1	Express		Underground, front, one lane	0.75		0.75	0.75										
Basic Basic	1	Express		Underground, behind, one lane Underground, front/behind, both lanes	0.75 0.75		0.75	0.75										
Basic	1	Express		Underground, sideloaded onto empty belt	0.62	-7%	0.75	0.73	+6%									
Basic	1	Express	Running belt items $\rightarrow$ chest	Splitter, side, one lane, blocked exit	0.86	-2%	0.88	0.89	+1%									
Basic	1	Express		Splitter, side, one lane, nonblocked exit	0.71	-3%		0.75	+3%									
Basic Basic	1	Express Express		Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	0.86	-2%	0.88	0.89	+1%									
Basic	1	Express		Splitter, side, both lanes, nonblocked exit	0.75		0.75	0.75										
Basic	1	Express	Running belt items → chest	Splitter, front/behind, both lanes, blocked exit		-2%	0.88	0.89	+1%									
Basic		Express	Queued helt items chest	Straight, side, near lane	0.89		0.89	0.89								1		

Inserter Type	Stack size	Belt Type	Setup Move type	Belt tile type			all directions, a Mean [13]			Dito, north→so Min [16] [17]	Il belt phases [8] Max [19] [20]	Dito, west→ea Min [21] [22]		belt phases [9] Max [24] [25]		ingle belt phase Max [29] [30]
Basic	1	Express	Queued belt items → chest	Straight, side, far lane	0.86	,	0.86	0.86	[]		 	(= , (= ,	[]	(= 1, (= 2)	[=-, [=-,	 (2-1, (2-1)
Basic Basic		Express Express	Queued belt items → chest Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	0.89	-2%	0.89	0.89	+2%							
Basic			Queued belt items → chest		0.86	-270	0.86	0.86	T270							
Basic				Straight, towards, both lanes	0.86	40/	0.86	0.86	+6%							
Basic Basic			Queued belt items → chest Queued belt items → chest		0.86	-4% -4%	0.90	0.95	+6%							
Basic	1		Queued belt items → chest		0.86	-4%	0.90	0.95	+6%							
Basic Basic	1	Express Express		Underground, side, one lane Underground, side, both lanes	0.86	-2%	0.88	0.89	+1%							
Basic	1	Express	Queued belt items → chest	Underground, front, one lane	0.86	-2%	0.88	0.89	+1%							
Basic Basic	1			Underground, behind, one lane Underground, front/behind, both lanes	0.86	-1%	0.86	0.86	+2%							
Basic	1			Underground, sideloaded onto empty belt	0.85	-2%	0.87	0.89	+2%							
Basic Basic	1			Splitter, side, one lane, blocked exit Splitter, front/behind, one lane, blocked exit	0.86 0.86	-2% -2%	0.88	0.89	+1%							
Basic	1			Splitter, iron/benind, one lane, blocked exit  Splitter, side, both lanes, blocked exit	0.89	-2%	0.89	0.89	+1%							
Basic	1			Splitter, front/behind, both lanes, blocked exit	0.86	-2%	0.88	0.89	+1%							
Basic Basic	1		Chest → belt Chest → belt	Non-splitter Splitter	0.83		0.83	0.83								
Basic	1	Fast	Running belt items $\rightarrow$ chest	Straight, side, near lane	0.83	-1%	0.84	0.85								
Basic Basic	1		Running belt items → chest Running belt items → chest		0.81	-1%	0.81	0.83	+2%							
Basic	1			Straight, side, sideloaded onto empty belt	0.75	-3%	0.77	0.78								
Basic Basic	1		Running belt items → chest		0.78	40/	0.78	0.78	- 00/							
Basic	1		Running belt items → chest Running belt items → chest		0.75 0.75	-1% -3%	0.76	0.78								
Basic	1	Fast		Underground, side, one lane	0.78	-6%	0.83	0.88	+6%							
Basic Basic	1	Fast Fast		Underground, side, both lanes Underground, front, one lane	0.78 0.78	-7%	0.84	0.88	+5%							
Basic	1	Fast	Running belt items → chest	Underground, behind, one lane	0.78		0.78	0.78								
Basic Basic	1	Fast Fast		Underground, front/behind, both lanes Underground, sideloaded onto empty belt	0.78	-8%	0.78	0.78	+5%							
Basic	1			Splitter, side, one lane, blocked exit	0.86	-8% -2%	0.74	0.78	+1%							
Basic	1			Splitter, side, one lane, nonblocked exit Splitter, front/behind, one lane, blocked exit	0.78 0.86	-4% -2%	0.81	0.83	+2%							
Basic Basic	1			Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	0.86	-2%	0.88	0.89	+1%							
Basic	1			Splitter, side, both lanes, nonblocked exit	0.83		0.83	0.83								
Basic Basic			Running belt items → chest Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit Straight, side, near lane	0.86	-2%	0.88	0.89	+1%							
Basic	1	Fast	Queued belt items → chest	Straight, side, far lane	0.86		0.86	0.86								
Basic Basic			Queued belt items → chest	Straight, side, both lanes Straight, side, sideloaded onto empty belt	0.89	-2%	0.89	0.89	+2%							
Basic			Queued belt items → chest		0.86	-270	0.86	0.86	1270							
Basic				Straight, towards, both lanes	0.86	40/	0.86	0.86	+6%							
Basic Basic	1	Fast Fast	Queued belt items → chest Queued belt items → chest		0.86	-4% -4%	0.90	0.95 0.95	+6%							
Basic	1		Queued belt items → chest		0.86	-4%	0.90	0.95	+6%							
Basic Basic	1			Underground, side, one lane Underground, side, both lanes	0.86	-2%	0.88	0.89	+1%							
Basic	1	Fast		Underground, front, one lane	0.86	-2%	0.88	0.89	+1%							
Basic Basic	1			Underground, behind, one lane Underground, front/behind, both lanes	0.86	-1%	0.86	0.86	+2%							
Basic	1			Underground, sideloaded onto empty belt	0.84	-3%	0.87	0.92	+6%							
Basic	1			Splitter, side, one lane, blocked exit	0.86	-2%	0.88	0.89	+1%							
Basic Basic	1			Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	0.86	-2%	0.88	0.89	+1%							
Basic	1			Splitter, front/behind, both lanes, blocked exit	0.86	-2%	0.88	0.89	+1%							
Basic Basic			Chest → belt Chest → belt	Non-splitter Splitter	0.83		0.83	0.83								
Basic	1		Running belt items → chest		0.93		0.93	0.93								
Basic Basic	1		Running belt items → chest Running belt items → chest		0.83	-2%	0.85	0.86	+1%							
Basic	1			Straight, side, sideloaded onto empty belt	0.80	-1%	0.81	0.83	+2%							
Basic	1	Basic	Running belt items → chest		0.68	-4%	0.71 0.83	0.75								
Basic Basic	1	Basic Basic	Running belt items → chest Running belt items → chest		0.81	-2% -11%	0.83	0.85								
Basic	1	Basic		Underground, side, one lane	0.83	-3%	0.86	0.88	+2%							
Basic Basic	1	Basic Basic		Underground, side, both lanes Underground, front, one lane	0.88	-1%	0.89	0.90	+1%							
Basic				Underground, behind, one lane	0.83		0.83	0.83								
Basic Basic				Underground, front/behind, both lanes	0.83 0.75	-5%	0.83	0.83	+5%							
Basic				Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	0.75	-5% -2%	0.79	0.83	+1%							
Basic		Basic	Running belt items → chest	Splitter, side, one lane, nonblocked exit	0.83	-6%		0.93	+6%							
Basic Basic				Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	0.86	-2%	0.88	0.89	+1%							
Basic	1	Basic	Running belt items → chest	Splitter, side, both lanes, nonblocked exit	0.93		0.93	0.93								
Basic Basic			Running belt items → chest Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit Straight, side, near lane	0.86	-2%	0.88	0.89	+1%							
Basic	1	Basic	Queued belt items → chest	Straight, side, far lane	0.86		0.86	0.86								
Basic Basic			Queued belt items → chest		0.89 0.82	-2%	0.89	0.89	+2%							
Basic			Queued belt items → chest Queued belt items → chest	Straight, side, sideloaded onto empty belt Straight, towards, one lane	0.82	-2%	0.84	0.86	-2%							
Basic	1	Basic	Queued belt items → chest	Straight, towards, both lanes	0.86		0.86	0.86								
Basic Basic	1		Queued belt items → chest Queued belt items → chest		0.86	-4% -4%	0.90	0.95 0.95	+6%							
Basic	1	Basic	Queued belt items → chest	Turn, both lanes	0.86	-4%	0.90	0.95	+6%							
Basic Basic	1			Underground, side, one lane Underground, side, both lanes	0.86	-2%	0.88	0.89	+1%							
Basic				Underground, front, one lane	0.86	-2%	0.89	0.89	+1%							
Basic		Basic	Queued belt items $\rightarrow$ chest	Underground, behind, one lane	0.86	401	0.86	0.86	+2%							
Basic Basic				Underground, front/behind, both lanes Underground, sideloaded onto empty belt	0.86 0.84	-1% -2%		0.89	+2%							
Basic	1	Basic	Queued belt items $\rightarrow$ chest	Splitter, side, one lane, blocked exit	0.86	-2%	0.88	0.89	+1%							
Basic Basic				Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	0.86	-2%	0.88	0.89	+1%							
Basic		Basic	Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit	0.86	-2%	0.88	0.89								
Burner	1		Chest → chest Chest → belt	Non enlitter	0.59		0.59	0.60	+2%							
Burner				Non-splitter Splitter	0.59 0.59		0.59	0.60								
Burner	1	Express	Running belt items → chest	Straight, side, near lane	0.45	-6%	0.48	0.50								
Burner Burner	1 1	Express Express	Running belt items → chest Running belt items → chest		0.50 0.42	-2%	0.50	0.50	+2%							
Burner	1	Express	Running belt items → chest	Straight, side, sideloaded onto empty belt	0.50	-2%	0.51	0.53	+4%							
Burner	1	Express	Running belt items → chest		0.50		0.50	0.50								
Burner		Express	Running belt items → chest	Turn, inner lane Turn, both lanes	0.46	-6% -6%	0.49	0.51	+4%	-					1	

Inserter		le	Belt	Setup		Items/se	cond. a	all directions, all	l belt phase	es [7]	Dito, north→sou	uth direction, al	Il belt phases [8]	Dito, west→ea	st direction, all I	pelt phases [9]	Dito, north→so	uth direction, si	ngle belt phase
Туре	Stack	k size			Belt tile type			Mean [13]	Max [14]		Min [16] [17]		Max [19] [20]	Min [21] [22]		Max [24] [25]	Min [26] [27]		Max [29] [30]
Burner	1	_		Running belt items → chest	Underground, side, one lane	0.53		0.55	0.57										
Burner	1				Underground, side, both lanes	0.53	-4%	0.55	0.57	+4%									
Burner	1				Underground, front, one lane	0.50		0.50	0.50										
Burner	1	_			Underground, behind, one lane	0.50		0.50	0.50										
Burner	1				Underground, front/behind, both lanes	0.50		0.50	0.50										
Burner Burner	1				Underground, sideloaded onto empty belt Splitter, side, one lane, blocked exit	0.46	-2% -2%	0.47	0.50	+6%									
Burner	1				Splitter, side, one lane, plocked exit	0.50	-2%	0.51		+4%									
Burner	1	_			Splitter, front/behind, one lane, blocked exit	0.62	-2%	0.63		+2%									
Burner	1	1 8	Express	Running belt items → chest	Splitter, side, both lanes, blocked exit	0.65		0.65	0.65										
Burner	1	1 8	Express	Running belt items → chest	Splitter, side, both lanes, nonblocked exit	0.53		0.53	0.53										
Burner	1	1 8	Express	Running belt items → chest	Splitter, front/behind, both lanes, blocked exit	0.63		0.63	0.64	+2%									
Burner	1	1 8	Express	Queued belt items $\rightarrow$ chest	Straight, side, near lane	0.65		0.65	0.65										
Burner	1			Queued belt items $\rightarrow$ chest		0.63		0.63	0.63										
Burner	1			Queued belt items $\rightarrow$ chest		0.65		0.65	0.65										
Burner	1				Straight, side, sideloaded onto empty belt	0.58	-5%	0.61	0.63	+3%									
Burner	1	_		Queued belt items chest		0.62	-2%	0.63	0.63	+2%									
Burner	1	_		Queued belt items → chest	Straight, towards, both lanes	0.62	-5%	0.64		+2%									
Burner				Queued belt items → chest		0.63	-3%	0.65	0.67	+5%									
Burner	1			Queued belt items → chest		0.61	-5%	0.64		+6%									
Burner	1				Underground, side, one lane	0.63	-2%	0.64	0.65	+2%									
Burner	1	1 8			Underground, side, both lanes	0.65		0.65	0.65										
Burner	1	1 8	Express	Queued belt items $\rightarrow$ chest	Underground, front, one lane	0.62	-2%	0.63	0.64	+2%									
Burner	1	1 8			Underground, behind, one lane	0.62	-2%	0.63	0.63										
Burner	1				Underground, front/behind, both lanes	0.61	-3%	0.63		+2%									
Burner	1	_			Underground, sideloaded onto empty belt	0.61	-2%	0.62		+3%									
Burner	1				Splitter, side, one lane, blocked exit	0.63	-2% -2%	0.64		+2%									
Burner	1				Splitter, front/behind, one lane, blocked exit Splitter, side, both lanes, blocked exit	0.62	-2%	0.63	0.64	+2%									
Burner	1				Splitter, front/behind, both lanes, blocked exit	0.63		0.63		+2%									
Burner	1				Non-splitter	0.59		0.59		+2%									
Burner	1				Splitter	0.59		0.59		+2%									
Burner	1			Running belt items → chest		0.50	-6%	0.53		+6%									
Burner	1		Fast	Running belt items → chest	Straight, side, far lane	0.57	-2%	0.58	0.60	+3%									
Burner	1	_		Running belt items → chest		0.50	-6%	0.53		+6%									
Burner	1	_			Straight, side, sideloaded onto empty belt	0.55	-5%	0.58		+3%									
Burner	1			Running belt items → chest		0.55	-2%	0.56		+2%									
Burner	1			Running belt items → chest		0.53	-4%	0.55		+4%				1					
Burner Burner	1			Running belt items → chest	Turn, both lanes Underground, side, one lane	0.53 0.55	-4% -5%	0.55 0.58		+4%				1					
Burner	1				Underground, side, one lane Underground, side, both lanes	0.55	-5%	0.58		+7%									
Burner	1				Underground, front, one lane	0.55	-5%	0.55	0.62	+/%									
Burner					Underground, holit, one lane	0.55		0.55	0.55										
Burner	1				Underground, front/behind, both lanes	0.55		0.55	0.55										
Burner	1	1 8	Fast	Running belt items → chest	Underground, sideloaded onto empty belt	0.50	-6%	0.53		+8%									
Burner	1	1 8	Fast	Running belt items → chest	Splitter, side, one lane, blocked exit	0.63	-2%	0.64	0.65	+2%									
Burner	1	1 8	Fast	Running belt items $\rightarrow$ chest	Splitter, side, one lane, nonblocked exit	0.56	-2%	0.57	0.60	+5%									
Burner	1	1			Splitter, front/behind, one lane, blocked exit	0.62	-2%	0.63		+2%									
Burner	1				Splitter, side, both lanes, blocked exit	0.65		0.65	0.65										
Burner	1				Splitter, side, both lanes, nonblocked exit	0.57	-2%	0.58		+3%									
Burner Burner	1				Splitter, front/behind, both lanes, blocked exit	0.63		0.63	0.64	+2%									
Burner		_		Queued belt items → chest Queued belt items → chest		0.63		0.63	0.63										
Burner	1	_		Queued belt items → chest Queued belt items → chest		0.63		0.63	0.63										
Burner	1	_			Straight, side, sideloaded onto empty belt	0.58	-5%	0.61		+3%									
Burner	1			Queued belt items → chest		0.62	-2%	0.63	0.63	-0,0									
Burner	1				Straight, towards, both lanes	0.62		0.62	0.63	+2%									
Burner	1			Queued belt items → chest		0.61	-5%	0.64	0.67	+5%									
Burner	1	1 8	Fast	Queued belt items $\rightarrow$ chest	Turn, inner lane	0.63	-3%	0.65	0.68	+5%									
Burner	1			Queued belt items $\rightarrow$ chest		0.61	-5%	0.64	0.68	+6%									
Burner	1				Underground, side, one lane	0.63	-2%	0.64	0.65	+2%									
Burner	1				Underground, side, both lanes	0.65		0.65	0.65										
Burner	1	_			Underground, front, one lane	0.61	-3%	0.63	0.64	+2%									
Burner					Underground, behind, one lane	0.63	-3%	0.63		+2%									
Burner	1	_			Underground, front/behind, both lanes Underground, sideloaded onto empty belt	0.61	-2%	0.63		+5%									
Burner	1				Splitter, side, one lane, blocked exit	0.63	-2%	0.64		+2%									
Burner	1				Splitter, front/behind, one lane, blocked exit	0.62	-2%	0.63		+2%									
Burner	1				Splitter, side, both lanes, blocked exit	0.65		0.65	0.65										
Burner	1	_			Splitter, front/behind, both lanes, blocked exit	0.63		0.63		+2%									
Burner	1				Non-splitter	0.59		0.59		+2%									
Burner	1				Splitter	0.59		0.59		+2%									
Burner	1	_		Running belt items → chest		0.50	-4%	0.52		+8%				-					
Burner Burner	1			Running belt items → chest Running belt items → chest		0.56 0.50	-7%	0.56	0.56	+40/									
Burner	-				Straight, side, both lanes Straight, side, sideloaded onto empty belt	0.50	-7%	0.60	0.62					-					
Burner	1			Running belt items → chest Running belt items → chest		0.59	-10%	0.60	0.62										
Burner	1			Running belt items → chest		0.57	-5%	0.60	0.62										
Burner	1			Running belt items → chest		0.46	-16%	0.55	0.62										
Burner	1	1 8	Basic	Running belt items → chest	Underground, side, one lane	0.62		0.62	0.68 +	+10%									
Burner	1				Underground, side, both lanes	0.62	-2%	0.63	0.68	+8%									
Burner	1	_			Underground, front, one lane	0.57		0.57	0.57										
Burner	1	_			Underground, behind, one lane	0.57		0.57	0.57										
Burner	1				Underground, front/behind, both lanes	0.57		0.57	0.57										
Burner	1				Underground, sideloaded onto empty belt	0.55	-5%	0.58	0.62										
Burner Burner	1				Splitter, side, one lane, blocked exit Splitter, side, one lane, nonblocked exit	0.63	-2% -5%	0.64	0.65	+2%									
Burner	- 1				Splitter, side, one lane, nonblocked exit Splitter, front/behind, one lane, blocked exit	0.62	-5%	0.65	0.68	+5%				-					
Burner	1				Splitter, iron/benind, one lane, blocked exit Splitter, side, both lanes, blocked exit	0.62	-2.70	0.65	0.65	- 2 /0									
Burner	1	_			Splitter, side, both lanes, procked exit	0.65	-3%	0.67		+1%									
Burner	1				Splitter, front/behind, both lanes, blocked exit			0.63		+2%									
Burner	1	_		Queued belt items → chest	.,,	0.65		0.65	0.65										
Burner	1			Queued belt items → chest	-	0.63		0.63	0.63										
Burner	1			Queued belt items $\rightarrow$ chest		0.65		0.65	0.65										
Burner	1				Straight, side, sideloaded onto empty belt	0.58	-5%	0.61		+3%									
Burner	1			Queued belt items → chest		0.62	-2%	0.63	0.63										
Burner	1				Straight, towards, both lanes	0.62		0.62	0.63	+2%									
Burner	1			Queued belt items - chest		0.61	-5%	0.64		+5%				-					
Burner Burner	1			Queued belt items → chest Queued belt items → chest		0.63	-3% -5%	0.65 0.64		+5%									
Darrier	1	_			Underground, side, one lane	0.61	-2%	0.64		+2%									
Rumer	1				Underground, side, both lanes	0.65	-270	0.65	0.65	- 2.70									
Burner					Underground, front, one lane	0.62	-2%	0.63		+2%									
Burner Burner Burner	1				Underground, behind, one lane	0.62	-2%	0.63	0.63	- "				l					
Burner	1	1 8	Basic	Queued belt items → cnest															
Burner Burner	1				Underground, front/behind, both lanes	0.61	-3%	0.63		+2%									
Burner Burner Burner	1	1 8	Basic	Queued belt items $\rightarrow$ chest			-3% -2%		0.64	+2% +3%									

Inserter		Belt	Setup		Items/sec	cond, a	all directions, all	l belt ph	ases [7]	Dito, north→sc	uth direction, al	belt phases [8]	Dito, west→ea:	st direction, all b	oelt phases [9]	Dito, north→sc	uth direction, sir	ngle belt phase [
Type	Stack si	e Type	Move type	Belt tile type	Min [11]	[12]	Mean [13]	Max [1	4 [15]	Min [16] [17]	Mean [18]	Max [19] [20]	Min [21] [22]	Mean [23]	Max [24] [25]	Min [26] [27]	Mean [28]	Max [29] [30]
Burner	1	Basic	Queued belt items → chest	Splitter, front/behind, one lane, blocked exit	0.62	-2%	0.63	0.6	4 +2%									
Burner	1	Basic	Queued belt items → chest	Splitter, side, both lanes, blocked exit	0.65		0.65	0.6	5									
Burner	1	Basic	Queued belt items → chest	Splitter, front/behind, both lanes, blocked exit	0.63		0.63	0.6	4 +2%									

Section   Sect	Express Running ball fair Express Running ball fair Express Running ball fair Express Running ball fair Ball and Ball and Salah Ball and Sala	- Chance Stranger - Chancel - Chance Stranger - Chancel - C	Back lanes (49)  The lanes (49)  Chee  Che	nia	no n	nia nina nina nina nina nina nina nina	Concepted beat type (jused in "detailed" sheet)  Non-spiller Non-s	too.(27) (48) (48) (48) (48) (48) (48) (48) (48	22 90 1500 1500 1500 1500 1500 1500 1500 1	Name (20 [51]   10   10   10   10   10   10   10	An Indian Company	The state of the s	kx (85) (86)	Sec. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	The state of the s	Managed (Principles)	Mon (27) (83) (83) (83) (83) (83) (83) (83) (83	Man (84)	Max (64) (69)	Mon (67) (66)	Mean pigg	Mas (70) (71) (71) (71) (71) (71) (71) (71) (71
Fig.	Facility   19   19   19   19   19   19   19   1	Straight (73) Straight (7	One Don Chee Both Chee Bot	nia	no o no	min	Non-spillare Non-s	15.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00	1500 2007 72	1500 3000 7750 3			00000 00000000000000000000000000000000			600 600 600 600 600 600 600 600 600 600			400	2019 (1975) (197		
	Fail Ball Ball Ball Ball Ball Ball Ball B	Straight Tun Tun Tun Tun Ucd ordinates Straight (77) Strai	Come Donn Donn Donn Donn Donn Donn Donn Don	nia	no on o	noa no	Non-spillare Non-s	2000 2000 2000 2000 2000 2000 2000 200	2000 1500 1500 1334 1334 1334 1334 1334 1334 1334 13	3000 3000 7750 1100 1100 1100 1100 1100 1100 1			100 100 100 100 100 100 100 100 100 100			2000 2000			1000 1000 1000 1000 1000 1000 1000 100	March   Marc		
Stuck   12   E   Stuck   13   E   Stuck   13   E   Stuck   13   E   Stuck   14   E   Stuck   15   E   Stuc	December	Straight Straight Straight Straight Straight Straight Tun	Both nia	nia Right Ri	nia del mante de	nina Ala Ala Ala Ala Ala Ala Ala Ala Ala Al	Non-spillare Non-s	1500 1384 1384 1384 1384 1384 1384 1384 1384	15.00 13.84 13.86	1500 1500 1500 1500 1500 1500 1500 1500			7-7-00 (10-10-10-10-10-10-10-10-10-10-10-10-10-1			7.00 10.00 1			7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.00	1 (2) (2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4		
Stack   12   Ex-   Stack   12	Expess Cited - Jest Expes	Straight Str	no n	Right - away Left	AM DA	AB A	Non-spillare Non-s	10344 10343 10344	13.84 13.85 13.86	11384 11341			10 10 10 10 10 10 10 10 10 10 10 10 10 1			1044 1044 1044 1044 1044 1044 1044 1044			1000 1000 1000 1000 1000 1000 1000 100	10.00		
Stack   12   Ex-   Stack   12	General Control - Self Speed C	Straight Straight Turn Turn Turn Turn Turn Turn Turn Turn	nob	Towards Away Away Away Away Away Away Away Away	Loony handed All	ASI	Non-spatier Spatier Spatie	1384 1384 1384 1384 1384 1384 1384 1384	13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 14.11 14.00 16.00	1354 1354 1354 1354 1354 1354 1354 1354			55.55 M			1538 1539 1539 1539 1539 1539 1539 1539 1539			1504 1504 1504 1504 1504 1504 1504 1504	10.38		
Stack   12   Ex	Speed   Seed   - Seed   See	Granget Trum Trum Trum Trum Trum Trum Und centrace Septime (72) Septime (73) Septim	nab	Annay Left — annay Left — annay Left — annay Left — annay Towards — beft Right Left Towards Annay Right Left Towards Annay Right Left Towards Annay Right Left Towards Towards Annay Right Left Towards Right Left Right Left Right Ri	AM A	AB A	Non-spatier Spatier Spatie	1354 1354 1354 1354 1354 1354 1354 1354	13.84 13.84	1384 1384 1384 1384 1384 1384 1384 1384			20 20 20 20 20 20 20 20 20 20 20 20 20 2			10.04 10.04			1000 1000 1000 1000 1000 1000 1000 100	2.00 (1.00 (		
Stack   12   Ex	□    □    □    □    □    □    □	Tun  Tun  Tun  Tun  Tun  Tun  Tun  Tun	noa	Left — away Towards — Gift Reft Reft Reft Reft Reft Reft Reft Re	All	All	Non-spitter Spitter Sp	1354 1354 1354 1354 1354 1354 1354 1354	13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 14.11 13.84 14.11 14.40 12.00 13.84 14.11 14.40 12.00 13.84 14.11 14.40 12.00 13.84 14.11 14.84 12.00 13.84 14.11 13.84 14.11 14.00 15.00 16.00	13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.88 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.85 13.85 13.86			5.5 M			10.00			1034 1034 1034 1034 1034 1034 1034 1034	10.10   10.10		
Stuck   12   Ex	Expose Cheel — Jeef Diposes Cheel — Jeef Dipose Cheel — Jeef Diposes Che	Turn Turn Turn Turn Turn Turn Turn Turn	nob	Towards - right Towards - right Right Left Right Right Left Right	All	All	Non-spatier Spatier Sp	13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.86 11.25 11.25 11.25 11.25 11.25 11.25 11.25 11.25 11.25 11.25 11.26 11.26 11.26 11.27 11.28 11.29	13.84 13.84 13.84 13.84 13.84 13.84 13.84 1411 13.84 1411 14.80 12	13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.85			333M 333M 333M 333M 333M 333M 333M 333			1544 1544 1544 1545 1545 1545 1545 1545			13.64 14.64 16.64 16.64	1534 1534 1534 1534 1534 1534 1534 1534		
Stack   12   Ex	Expose Cheel — Jeef Depose	Use entruces Experience (7) Signitive (7	no into into into into into into into in	Right Left Townstip Away Right Left Townstip Left Townstip Left Townstip Right Left Townstip Right Left Townstip Right Left Townstip Townstip Townstip Right Left Right Right Left Right Right Left Right Right Left Right Rig	All	All	Non-spitter Spitter Spitte	13,84 13,84 13,84 13,84 13,84 13,84 13,84 13,84 13,84 13,84 13,84 13,84 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 10,00 10,00 10,00 10,00 10,00 10,00 9,47	13,84 13,84 13,84 13,84 13,84 1411 13,84 1411 13,84 1411 13,84 1411 13,84 1411 13,84 1412 1200 13,84 11,25 1	13,84 13,84 13,84 13,84 13,84 13,84 13,84 13,84 14,11 14,40 13,84 14,11 14,40 13,84 14,84			5.55 (			U.S. (U.S. (			13.64 13.64 13.64 13.64 13.64 13.64 13.64 13.64 13.64 14.11 14.40 13.64 12.00 13.64 14.64 15.64	13.84 13.84 13.84 13.84 13.84 13.84 13.84 14.11 14.40 13.84 12.00 12.00 13.84 12.00 13.84 14.84 14.84 14.84 14.84 14.84 14.84 14.84 14.84 14.84 14.84 14.84		
Suck   12   Ex-   Suck   13   Ex-   Suck   13   Ex-   Suck   14   Ex-   Suck   12   Ex-   Suck   12   Ex-   Suck   12   Ex-   Suck   13   Ex-   Suck   14   Ex-   Suck   15	Expose Cities — leaf Expose Stamps plant & Ball — cities — leaf Expose Stamps plant & Ball — cities — leaf Expose Stamps plant & Ball — cities — leaf Expose Stamps plant & Ball — cities — leaf Expose Stamps plant & Ball — cities — leaf Expose Stamps plant & Ball — cities — leaf —	Und entrance Und e	nia	Left Townside Away Left Left Townside Away Right Left Right Right Left Right Righ	All	ASI	Non-spatier Spatier Spatier Non-spatier Spatier Spatie	13,84 13,84 13,84 13,84 13,84 13,84 13,84 13,84 13,84 14,41 14,40 13,84 12,00 13,84 12,00 13,84 12,00 13,84 11,25 11,25 11,25 11,25 11,25 11,26 11,26 11,27 11,00 10,00 10,00 9,47	13.84 13.84 13.84 13.84 13.84 13.84 13.84 14.11 13.84 11.38 11.38 11.38 11.25 11.25 11.25	13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 14.11 14.11 14.11 12.00 12.00 13.84 11.25 11.25 11.25 11.25 12.85 10.00 10.00			35.33 M			13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 14.11 14.11 14.10 14.10 13.84 13.84 13.84 13.84 13.84 13.84 14.80			1384 1384 1384 1384 1384 1384 1384 1411 1411	13.84 13.84		
Stack   12   Ex	Expose Direct — bet Dippose Cheel — bet Dippos	Use entrope Use est Seption (72) Seption (73) Se	no n	Away Right Left Markey Right Left Left Markey Right Left Left Left Markey Right Left Left Left Left Left Left Left Left	All	All	Non-spitter Non-spitter Non-spitter Non-spitter Non-spitter Non-spitter Non-spitter Spitter Sp	13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 14.11 14.11 14.11 14.12 13.84 13.84 11.25 11.25 11.25 11.25 11.26 11.26 11.26 11.27 11.29	13,84 13,84 13,84 14,11 14,11 14,41 14,41 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 10,00 10,00 10,00 9,47 9,47	13.84 13.84 13.84 13.84 13.84 13.84 13.84 14.11 14.11 14.11 14.10 13.84 12.00 12.00 12.00 11.25 11.25 11.25 11.25 12.85 12.85 12.85 10.00 10.00 10.00 10.00			5.55			10,36 10,36 10,36 10,36 10,36 10,41 11,36 10,20 10,20 10,20 11,26			12.64 13.64 14.64 15.64	13.84 13.84 13.84 13.84 13.84 14.11 14.40 13.84 12.00 13.84 12.00 13.84 12.00 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84 13.84		
Stack	Expose Cincibet County Coun	Und cell Und cell Und cell Und cell Springer (73) Springer (74) Springer	nia	Left Townsids	All Loop handed All All All All All All All All All Al	All	Non-spatter Non-spatter Non-spatter Non-spatter Non-spatter Spatter Sp	13.84 13.84 13.84 14.11 14.11 14.11 14.10 13.84 12.00 12.00 13.84 13.84 13.84 13.84 13.84 13.86 10.00 10.00 10.00 10.00 9.47	13.84 13.84 14.11 14.11 14.40 13.84 12.00 12.00 13.84 13.84 13.85 11.25 11.25	13.84 13.84 14.11 14.11 14.11 14.11 14.12 13.84 12.00 12.00 12.00 13.84 13.84 13.84 13.85 11.25 11.25			23 3 M			13.84 13.84 13.84 14.13 14.11 14.13 14.13 14.25 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26 13.26			1384 1384 1411 1411 1440 1441 1440 1200 1384 1200 1384 1200 1384 1126 1126 1126 1126 1126 1126 1126 112	13.84 13.84 14.11 14.40 13.84 12.00 12.00 13.84 12.00 12.00 13.84 12.00 12.00 13.84 12.00 12.00 13.00		
Stack   12   Ex	Control - self Exposes Cheel - self Exposes Running bell for Exposes Running bell	Und east Und east Und east Und east Supplier (773) Supplier (774) Supplier (774) Supplier (774) Supplier (774) Supplier (774) Supplier (774)	nia	Tousids Away Right Tousids Away Right Let Right Let Right Let Right Let Right Let Right Tousids Away Right Tousids Away Right Let Right	Long-handed All All All All All All All All All Al	All	Non-spatter  Non-spatter  Spatter  Spatter  Spatter  Non-spatter  Non-spatter  Non-spatter  Non-spatter  Non-spatter  Non-spatter  Non-spatter  Staglitz, sind, near lame  Staglitz, sind, so lame  Staglitz,	13.84 14.11 14.40 13.84 12.00 12.00 13.84 12.00 13.84 13.84 11.25 11.25 11.25 11.25 11.265 10.00 10.00 10.00 9.47	13.84 14.11 14.11 14.40 13.84 12.00 13.84 13.84 13.84 13.84 11.25 11.25 11.25	13.84 14.11 14.41 14.41 13.84 12.00 13.84 13.84 13.84 11.25 11.25 11.25 12.85 12.85 12.85 12.85 12.85 12.85			55.54 (55			13.34 13.41 14.11 14.11 13.24 13.24 12.20 12.20 12.20 12.20 13.24 13.24 13.24 13.25 11.25 11.25			13.64 13.64 14.11 14.11 14.11 14.10 12.00 12.00 12.00 12.64 13.64 13.64 13.64 13.64 14.65	13.84 13.84 14.91 14.91 14.40 12.84 12.84 12.84 13.84 13.84 13.84 13.84 14.85 14.85 14.85 14.85 15.85 16.00		
Stack   12   Ex	Expose Chee - Jeef Expose Running belt on Jeef Expose Running better Jeef Expose Runnin	Spiriter (72) Spiriter (73) Sp	nia	Right Left Townstee Right Left Right Right Left Right Right Left Right Righ	All	All	Spatter Spatte	14.11 14.40 13.84 12.00 13.84 12.00 13.84 13.84 11.25 11.25 11.25 12.85 10.00 10.00 10.00 9.47	14.11 14.11 14.40 13.84 12.00 12.00 13.84 13.84 13.84 11.25 11.25 11.25 10.00 10.00 10.00 10.00 9.47 9.47	14.11 14.11 14.40 13.84 12.00 13.84 12.00 13.84 13.84 13.84 13.85 11.25 11.25 11.25 11.25 11.25 11.00 10.00			13.864 11 14 14 15 14 17 15 14 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18			13.84 11.45 14.19 14.19 14.19 15.34 12.20 13.34 13.34 13.34 11.25 11.25 11.26 12.85 12.85 12.85 12.85 10.00			1384 14:11 14:11 14:40 13:84 12:00 12:00 12:00 13:84 13:84 13:84 13:84 14:28 11:28 11:28 11:28 11:28 11:28 11:00 10:00	13.84 94.11 94.11 14.40 12.30 12.30 13.84 12.30 13.84 12.30 13.84 12.35 11.25 11.25 11.25 12.85 12.85 12.85 13.85 13.85 14.85 14.85 15.85 16.85		
Stack   12   Ex	Expose Ches - Jest Expose Ches - Jest Exposes Ches - Jest Ches - Jest Ches - Jest Ches Ches - Jest Ches Ches Ches Ches Ches Ches Ches Ches	Spire (73) Spire (74)	nia	Left Townstip Anny Right Left Townstip Townstip Townstip Left Townstip Left Right Left Townstip Left Right Left Townstip Right Left Right Right Left Right Right Left Right Right Right Right Left Right	All	All	Spatter Non-spatter (70) Spatter Non-spatter (70) Spatter Non-spatter (70) Spatter Spa	14.11 14.40 13.84 12.00 12.00 13.84 13.84 11.25 11.25 11.25 12.85 10.00 10.00 10.00 9.47	14.40 13.84 12.00 13.84 12.00 13.84 13.84 13.84 13.84 11.25 11.25 11.25 12.85 12.85 12.85 10.00 10.00 10.00 9.47 9.47	14.11 14.40 13.84 12.00 13.84 12.00 13.84 13.84 13.84 11.25 11.25 11.25 12.85 10.00 10.00			14 11 14 11 14 11 14 11 14 11 14 11 14 11 14 11 14 11 14 11 14 11 11			14.11 14.11 14.42 12.00 13.64 13.64 13.64 13.64 13.64 13.66 13.66 14.66			14.11 14.40 14.40 12.00 12.00 13.84 13.84 13.84 11.25 11.25 11.25 11.26 12.86 12.86 12.86 12.86 12.86 12.86 13.86	14.11 14.40 13.84 12.00 13.84 12.00 13.84 13.84 13.84 13.85 14.25 14.25 14.25 14.25 14.25 15.26 15.00		
Stack   12   Ex	Depose Chee - best Deposes Running polit fact proposed Running polit fact proposed Running polit fact proposed Running polit fact proposed Running polit fact political Running Ru	principle of the princi	No Near New York New	Away  Right  Left  Left  Towards  Towards  Away  Away  Left  Towards  Away  Away  Right  Left  Towards  Right  Left	All	All	Non-spatiar (78)  Singell, side, near laree Straight, side, near laree Straight, side, near laree Straight, side, for laree Straight, side, for laree Straight, side, for laree Straight, side, both laree Straight, side, so thin laree Straight, side, side side or one many left	13,84 12,00 12,00 12,00 13,84 13,84 11,25 11,25 11,25 12,85 10,00 10,00 10,00 9,47	13.84 12.00 13.84 13.84 13.84 11.25 11.25 11.25 12.85 12.85 12.85 10.00 10.00 10.00 10.00 9.47 9.47	13,84 12,00 12,00 13,84 13,84 13,84 11,25 11,25 11,25 12,85 10,00 10,00 10,00			14.4.40 12.2.00 12.2.00 12.2.00 12.2.00 12.2.00 13.3.64 13.			14.45 4 12.50 12.2			14.40 13.84 12.00 13.84 13.84 13.84 13.84 13.84 13.84 13.85 14.25	14.40 15.84 12.00 12.00 12.00 13.84 13.84 13.84 13.84 14.25 14.25 14.25 12.85 12.85 10.00 10.00		
Stack 12 Ex- Stack	Expess Running belt for Expess	- Challe Stagget - Challe - Challe Stagget - Challe	Near Flag Far	Right Left Right Townstin Townstin Townstin Townstin Townstin Right Left Right Right Left Right Rig	All	All	Songer, sick, near lave.  Songer, sick, near lave.  Songer, sick, near lave.  Songer, sick, near lave.  Songer, sick, sick frame.  Songer, sick, sick frame.  Songer, sick, songer, near lave.  Songer, sick, sick lave.  Songer,	12,00 12,00 13,84 13,84 11,25 11,25 11,25 11,25 12,85 10,00 10,00 10,00 10,00 9,47	12.00 12.00 13.84 13.84 13.84 11.25 11.25 12.85 12.85 10.00 10.00 10.00 9.47 9.47	12.00 13.84 13.84 13.85 11.25 11.25 11.25 12.85 10.00 10.00			12.286 11			13,26 12,20 12,20 13,84 13,84 13,84 13,84 11,25 11,25 11,25 11,25 12,26 10,00 10,00			12.84 12.00 12.00 12.84 13.84 13.84 11.25 11.25 11.25 12.85 12.85 12.85 12.80 10.00	13.84 12.00 12.00 12.84 13.84 13.84 13.85 12.85 12.85 12.85 12.85 10.00		
Stack   12   Ex	Exposes Running belt for begress Running belt for begress Running belt for begress Running belt for begress Running belt for belt	- Chance Stranger - Chancel - Chance Stranger - Chancel - C	Near page 1 page	Left Towards Towards Towards Away Right Left Towards Away Right Left Left Left Left Left Left Left Lef	All Long-handed Lo	All	Straight, sick, near lave.  Straight, sick, for farme Straight, sick, for farme Straight, sick, for farme Straight, sick, sick for lave.  Straight, broards, one lave.  Straight, sick, both laves.  Straight, sick, sicklesseder one merby best Straight, sick, sicklessed one one merby best	12.00 13.84 13.84 11.25 11.25 11.25 12.85 12.85 12.85 12.80 10.00 10.00 10.00	12.00 13.84 13.84 11.25 11.25 11.25 12.85 10.00 10.00 10.00 9.47 9.47	12.00 13.84 13.84 11.25 11.25 11.25 12.85 10.00 10.00			12.00 13.84 13.84 11.25 11.25 11.25 12.85 10.00 10.00			12.05 13.54 13.54 11.25 11.25 12.65 12.65 10.00 10.00			12.00 12.84 11.84 11.25 11.25 11.25 12.85 10.00 10.00	12.00 13.84 13.84 11.25 11.25 11.25 12.85 12.85 10.00 10.00		
Stack   12   Ex	Exposes Planning bell bits Delication of the Control of the Contro	- Check Engight  Straight	Far  Right  Righ	Left Towards Towards Towards Away Right Left Towards Away Right Left Left Left Left Left Left Left Lef	All Long-handed Lo	All	Straight, dock for farme Straight, towards, one lave Straight, sowards, one lave Straight, sowards, one lave Straight, sinch both laxes Straight, sinch both laxes Straight, sowards, both laxes Straight, towards, both laxes Straight, towards, both laxes Straight, towards, both laxes Straight, towards, both laxes Straight, sowards, both laxes Straight, since, sincidented orde empty bett	11.25 11.25 11.25 12.85 12.85 12.85 12.85 10.00 10.00	13.84 11.25 11.25 12.85 10.00 10.00 10.00 9.47 9.47	13.84 11.25 11.25 11.25 12.85 10.00 10.00 10.00 10.00			13 .54 .53 .54 .53 .54 .53 .54 .55 .55 .55 .55 .55 .55 .55 .55 .55			13.364 13.364 11.25 11.25 11.25 11.26 12.86 12.86 10.00 10.00			13.54 13.54 11.25 11.25 11.25 12.85 12.85 10.00 10.00	13.84 13.84 11.25 11.25 11.25 12.85 10.00 10.00		
Stack   12   Ex-	Bild clear Bi	Graught Graught Graught Graught  — cheel Straight Graught Grau	Left Left Left Left Left Left Left Left	Towards Away Away Away Away Right Left Towards Away Right Left	Long-handed Long-handed Long-handed Long-handed All All Long-handed	All Long-handed Long-handed All All All All All All All All All Al	Sought, towards, one lane Sought, solds, both lanes Sought, towards, both lanes Sought, towards, both lanes Sought, towards, both lanes Sought, towards, both lanes Sought, solds, sittleoaded ords melply bell Sought, sold, sittleoaded ords melply bell Sought, sold, sittleoaded ords melply bell Sought, solds, sittleoaded ords melply bell Sought, sold, sittleoaded ords melply bell	11.25 12.85 12.85 10.00 10.00 10.00 9.47 9.47	11.25 12.85 10.00 10.00 10.00 10.00 9.47 9.47	12.85 12.85 10.00 10.00 10.00 9.47			11.25 11.25 11.25 12.26 12.26 10.00 10.00 10.00 9.47			11.25 11.25 11.25 12.85 12.85 10.00 10.00			11.25 11.25 11.25 12.85 12.85 10.00 10.00	11.25 11.25 11.25 12.85 12.85 10.00 10.00		
Stack   12   Ex-	Bill — cheel Express Remay better the Express	Granget  Gra	Right Left Both Both Both Both Both Both Both Bot	Away Away Right Left Towards Away Right Left	Long-handed Long-handed All All All Long-handed All All All All All All All All All Al	Long-handed Long-handed All All All All All Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed All All All All All All All All All Al	Straight, side, both lanes Straight, side, both lanes Straight, side, both lanes Straight, side, both lanes Straight, side, side, side, side, side, straight, side, side, side, side, side, straight, side, side, side, side, side, straight, side, side, side, side, straight, side, side	11.25 12.85 12.85 10.00 10.00 10.00 9.47 9.47	11.25 12.85 10.00 10.00 10.00 10.00 9.47 9.47	12.85 12.85 10.00 10.00 10.00 9.47			111.25 111.25 111.25 12.25 12.25 10.00 10.00 10.00 9.47			11.25 11.25 11.25 12.25 10.00 10.00			11.25 11.25 11.25 12.85 12.85 10.00 10.00	11.25 11.25 12.85 12.85 12.85 12.80 10.00 10.00		
Stack   12   Ex-	Expess Running belt for boyes Running belt for boyes Running belt for both the boyes Running belt for both the belt for both the belt for belt fill for belt fill fill fill fill fill fill fill fi	in course of transport	Left Both Both Both Both Both Both Both Bot	Away Right Left Right Away Right Right Left Right Right Left Right Righ	Long-handed All All All Clong-handed Long-handed All All All All All All All All All Al	Long-handed AII AII AII AII AII Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed AII AII AII AII AII AII AII AII AII AI	Straight, side, both lanes Straight, towards, both lanes Straight, side, sideloaded onto empty belt	11.25 12.85 12.85 10.00 10.00 10.00 9.47 9.47	11.25 12.85 10.00 10.00 10.00 10.00 9.47 9.47	12.85 12.85 10.00 10.00 10.00 9.47			111.25 111.25 111.25 112.85 12.2.85 10.00 10.00			11.25 11.25 11.25 12.25 10.00 10.00			1125 1125 1125 1285 1285 1280 1000 1000	11.25 11.25 11.25 12.85 12.85 10.00 10.00		
Stack   12   Ex-	Exposes Running belt between the belt — order of the	s - cheel Straight St	Both Both Both Hear, early Near, early Near, early Near, early Near, early Far, lain Far, early Far, lain Far, early Far, lain Right, early Laft, earl	Left Towards Away Right Left Right Left Right Left Right Left Right Left Towards Towards Towards Towards Towards Towards Right Left	All Long-handed Lo	All	Straight, side, both lanes Straight, towards, both lanes Straight, side, sideloaded onto empty belt	11.25 12.85 12.85 10.00 10.00 10.00 9.47 9.47	11.25 12.85 10.00 10.00 10.00 10.00 9.47 9.47	12.85 12.85 10.00 10.00 10.00 9.47			11.25 11.25 12.85 12.85 10.00 10.00			11.25 11.25 12.25 10.00 10.00			11.25 11.25 12.85 12.85 10.00 10.00	11.25 11.25 12.85 12.85 10.00 10.00		
Stack   12   Ex-	Bill — chest	Granget Stranget, selected of Stranget, sele	Both Nacc, carly Nacc, carly Nacc, carly Nacc, carly Nacc, carly Nacc, title Nacc, title Par, carly Par, carly Par, carly Par, carly Par, carly Par, title Par, title Right, carly Laft, early Laft, early Laft, early Laft, early Laft, early Laft, early Laft, tarly Laft, early Laft, e	Away Right Left Right Left Right Left Right Left Right Left Towards Towards Towards Away Away Away Away Left Right R	Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed All All All Long-handed	Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed ARI	Straight, side, sideloaded onto empty belt Straight, side, sideloaded onto empty belt	12.85 10.00 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 10.00 9.47			12.85 12.85 10.00 10.00 10.00			12.85 12.85 10.00 10.00 10.00 10.00 9.47			12.85 12.85 10.00 10.00	12.85 12.85 10.00 10.00		
Stack   12   Ex-	Bill — chest Bill	Bragint, esciolosido Estagint, esciolosido esciolosido Estagint, esciolosido es-chese Estagint, esciolosido es-chese Estagint, esciolosido Estagint, esciolosido Estagint, esciolosido Estagint, esciolosido Estagint, esciolosido esciolosido Estagint, esciolosido es-chese Estagint, esciolosido es-chese Estagint, esciolosido es-chese Estagint, esciolosido es-chese Estagint, esciolosido Estagint, e	Near, carly Near, List Near, List Near, List Near, List Par, carly Par, carly Par, carly Par, carly Par, carly Regist, carly Last, carly Regist, carly Regist, carly Last, carly Regist, car	Right Left Right Left Right Left Right Left Right Left Right Left Towards Towards Towards Towards Towards Away Away Left Right Left	Long-handed Long-handed Long-handed Long-handed Long-handed All All All Long-handed Long-handed All All All All All All All All All Al	Long-handed Long-handed Long-handed Long-handed Long-handed All All All All All All All All All Al	Straight, side, sideloaded onto emply belt Straight, side, sideloaded onto emply belt	12.85 10.00 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 10.00 9.47			12.85 10.00 10.00 10.00 10.00 10.00			12.85 12.85 10.00 10.00			12.85 12.85 10.00 10.00	12.85 12.85 10.00 10.00		
Stack   12   Ex-	Bill — cheel Bill	The state of the s	Near, title Near, title Par, carly Far, carly Far, carly Far, carly Far, carly Far, title Right, carly Lett, tate Right, carly Lett, tate Lett, tate Right, carly Lett, tate Lett, tate Don, carly Back, Bac	Right Left Right Left Right Left Right Left Towards Towards Towards Towards Away Away Left Right Right Left Right Right Left Right Right Right Right Right Left Right Rig	Long-handed Long-handed Long-handed All All All All Long-handed	Long-handed Long-handed All All All All All All All All All Al	Straight, side, sideloaded onto empty belt Straight, side, sideloaded onto empty belt	12.85 10.00 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 10.00 9.47			12.85 10.00 10.00 10.00 10.00 9.47			12.85 12.85 10.00 10.00			12.85 12.85 10.00 10.00	12.85 12.85 10.00 10.00		
Stack   12   Ex-	Description of the control of the co	services of the services of th	Near, Life Far, carly Far, carly Far, carly Far, carly Far, carly Laft, carly	Left Right Left Right Left Towards Towards Towards Towards Away Away Left Right Right Left Right Right Left Right Rig	Long-handed All All All All Long-handed	Long-handed All All All All All All All All All Al	Straight, side, sideloaded onto empty belt Straight, side, sideloaded onto empty belt Straight, side, sideloaded onto empty belt Straight, side, sideloaded onto empty belt	12.85 10.00 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 10.00 9.47			12.85 10.00 10.00 10.00			12.85 12.85 10.00 10.00			12.85 12.85 10.00 10.00	12.85 12.85 10.00 10.00		
Stack   12   Ex-	Express Running ball fair Express Running ball fair Express Running ball fair Express Running ball fair Ball and Ball and Salah Ball and Sala	- Cheek Ellingth, stellededed - Straight, stellededed - Straight, stellededed - Cheek Ellingth, stellededed	Far, carly Far, late Far, late Far, late Far, late Far, late Right, early Left, early Right, late Left, late Right, early Left, early Right, late Left, late Both, backlearly Both, earlyback Both, backlearly Both, earlyback Both, backlearly Both, earlyback Both, backlearly Both, late Bo	Left Right Left Towards Towards Towards Towards Away Away Away Away Away Away Left Right Left	All All Long-handed Long-handed Long-handed Long-handed All All All All Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed	All	Straight, side, sideloaded onto empty belt Straight, side, sideloaded onto empty belt	12.85 10.00 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 9.47 9.47	12.85 10.00 10.00 10.00 10.00 10.00 9.47			12.85 12.85 10.00 10.00 10.00			12.85 12.85 10.00 10.00 10.00 10.00 9.47			12.85 12.85 10.00 10.00	12.85 12.85 10.00 10.00		
Stack   12   Ex	Express Running ball file  Best - cheek  Express Running ball file  Best - cheek  Best - cheek  Express Running ball file  Best - cheek  Express Running ball file  Best - cheek	- Cheek Strayt, stelledoods Strayt, stelledoods Strayt, stelledoods Strayt, stelledoods Strayt, stelledoods - Cheek Strayt, stelledoods	Far, labe Far, labe Far, labe Fight, early Left, early Fight, labe Left, sale Fight, early Left, early Both, early Both, early Both, backvearly Both, backvearly Both, backvearly Both, carlysback Both, backvearly Both, carlysback Both, backvearly Both, carlysback Both, labekvearly Both, latekvearly	Right Left Towards Towards Towards Towards Towards Away Away Away Away Away Right Left	All All Long-handed Long-handed Long-handed Long-handed All All All All All All Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed	All	Straight, side, sideloaded onto empty belt	10.00 10.00 10.00 10.00 10.00 9.47 9.47	10.00 10.00 10.00 10.00 9.47 9.47	10.00 10.00 10.00 10.00 10.00 9.47			10.00 10.00 10.00 10.00 10.00 9.47			10.00 10.00 10.00			10.00	10.00 10.00 10.00		
Stack   12   Ex	Bell - chest	Graphy, solicitudes Straight, solicitudes — cheek Straight, solicitudes — cheek Straight, solicitudes — cheek Straight, solicitudes — cheek Straight, solicitudes Straight, soli	Flight, early Left, early Flight, late Left, tate Flight, early Left, early Flight, late Left, tate Flight, late Left, tate Both, back/learly Both, back/learly Both, back/learly Both, back/learly Both, late/back Both, early/learly Both, late/back Both, back/late Both, back/late Both, back/late Both, late/back Both, l	Left Towards Towards Towards Towards Towards Away Away Away Away Away Away Away Away	Long-handed Long-handed Long-handed Long-handed All All All All All Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed Long-handed	All		10.00 10.00 9.47 9.47	10.00 10.00 9.47 9.47	10.00 10.00 9.47			10.00 10.00 10.00 9.47			10.00 10.00 10.00 9.47			10.00	10.00		
Stack   12   Ex	Bell chest	Brayth, steleosobil Brayth, steleosobil Brayth, steleosobil Grayth, s	Left, early Right, late Left, late Right, early Left, sarly Left, sarly Left, sarly Right, late Left, late Both, earlyback Both, backlearly Both, backlearly Both, backlearly Both, backlearly Both, lateback	Towards Towards Towards Away Away Away Away Away Away Right Left	Long-handed Long-handed AII AII AII AII AII Long-handed AII Long-handed Long-handed Long-handed Long-handed Long-handed AII AII AII AII AII AII AII AII AII AI	All		10.00 9.47 9.47	10.00 9.47 9.47	10.00 9.47			10.00 10.00 9.47			10.00 10.00 9.47			10.00	10.00		
Stack   12   Ex	Bell - chest  Bell - chest  Bell - chest  Berpess Running bell file  Express Running bell file  Express Running bell file  Express Running bell file  Express Running bell file  Bell - chest	Straight, selectionable Straight, selectionable Straight, selectionable an - chanse Straight, selectionable Straight, selectio	Flight, late Left, late Flight, early Left, early Flight, late Both, back/learly Both, back/learly Both, early/early Both, early/early Both, late/back Both, back/late Both, back/late Both, late/back Both, late/back Both, late/back Both, late/back Both, late/back Both, late/back Both, late/back Both, late/back Both, late/back Both, late/early	Towards Away Away Away Away Away Right Left	Long-handed Long-handed All All All All All Long-handed Long-handed Long-handed Long-handed Long-handed All All All All All All All All All Al	All All All All All All All All Long-handed Long-handed		10.00 9.47 9.47	10.00 9.47 9.47	10.00 9.47			10.00 10.00 9.47			10.00 10.00 9.47			10.00	10.00		
Stack   12   Ex	Express Running belf for the Express Running belf for Express Running belf for Express Running belf for Express Running belf for Express Running belf for Belf - chest Belf - che	s - chest Straght, sideloaded on - chest Straght, sideloaded	Flight, early Left, early Left, early Right, late Both, early/back Both, back/early Both, back/early Both, early/early Both, early/early Both, late/back Both, early/early Both, late/back Both, back/late Both, back/late Both, late/back Both, late/back Both, late/back Both, late/back Both, late/back Both, late/back Both, late/early	Away Away Away Away Right Left Right	All All All All All All Long-handed Long-handed Long-handed Long-handed All	All All All All All All All Long-handed Long-handed		10.00 9.47 9.47	10.00 9.47 9.47	10.00 9.47			10.00 10.00 9.47			10.00 10.00 9.47			10.00	10.00		
Stack   12   Ex	Express Punning bet file Express Punning bet file Express Running bet file Express Running bet file Bet - chest Bet - chest Bet - chest Express Punning bet file Express Punning bet file Express Punning bet file Express Punning bet file Express Punning bet file Bet - chest Bet -	a - chest Straight, sideoaded ac - chest Straight, sideoaded Straight, sideoaded Straight, sideoaded Straight, sideoaded Straight, sideoaded Straight, sideoaded ac - chest Straight, sideoaded ac - chest Straight, sideoaded	Left, early Feight, late Left, late Both, early/back Both, back/learly Both, back/learly Both, early/learly Both, early/learly Both, late/back Both, back/late Both, back/late Both, late/back Both, late/back Both, late/back	Away Away Away Away Away Right Left	All All All All Long-handed Long-handed Long-handed Long-handed All	All All All All Long-handed Long-handed		9.47 9.47	9.47 9.47	9.47			9.47 9.47			10.00 9.47			10.00	10.00		
Stack   12   Ex     Stack   12   Ex     Stack   12   Ex     Stack   12   Ex	Express Running belt file Express Running belt file Bert - cheef Bert - cheef Bert - cheef Bert - cheef Bert - cheef Express Running belt file Express Running belt file Bert - cheef Bert -	a - chest Straight, sideroaded	Left, late Both, early/back Both, back/early Both, back/early Both, early/early Both, early/early Both, late/back Both, back/late Both, back/late Both, late/back Both, late/early Both, late/early Both, late/early	Away Right Left Right Left Right Left Right Left Right Left Right Left Left Left	All All All Long-handed Long-handed Long-handed Long-handed All	All All Long-handed Long-handed		9.47	9.47				9.47						0.47			
Stack 12 Ex Stack 12 Ex Stack 12 Ex	Express Running bet file Express Running bet file Best - cheet Best - cheet Best - cheet Express Running bet file Express Running bet file Express Running bet file Best - cheet Best - cheet	s - chest Straight, sidelcoaded or - chest Straight, sidelcoaded Straight, sidelcoaded Straight, sidelcoaded Straight, sidelcoaded Straight, sidelcoaded or - chest Straight, sidelcoaded or - chest Straight, sidelcoaded or - chest Straight, sidelcoaded Straight, side	Both, early/back Both, backlearly Both, backlearly Both, early/back Both, early/early Both, early/early Both, backllate Both, backllate Both, backllate Both, late/back Both, early/late Both, late/back Both, late/early Both, late/early	Right Left Right Left Right Left Right Left Right Left Right Left Left Left	All Long-handed Long-handed Long-handed Long-handed All	All Long-handed Long-handed										9.47			9.47	9.47		
Stack 12 Ex	Belt chest Belt chest Belt chest Belt chest Belt chest Belt chest Express Running belt itee Belt chest	Straight, sidenoaded Straight, sidenoaded Straight, sidenoaded Straight, sidenoaded or chest Straight, sidenoaded or chest Straight, sidenoaded Straight, sidenoaded	Both, backlearly Both, early/back Both, early/early Both, early/early Both, late/back Both, back/late Both, late/back Both, early/late Both, late/early Both, late/early Both, late/early	Right Left Right Left Right Left Right Left Right Left	Long-handed Long-handed Long-handed Long-handed All	Long-handed Long-handed		10.00 -2% 10.00 -2%	10.21	10.58 +4%			10.58 +4%			10.58 +4%			10.58 +4%	10.00 -29		
Stack 12 Ex Stack 12 Ex	Bett chest	Straight, sidelonded	Both, early/early Both, early/early Both, laterback Both, back/late Both, back/late Both, laterback Both, early/late Both, late/early Both, late/early	Right Left Right Left Right Left	Long-handed Long-handed All			2%	.w.a.l	74%										-29		
Stack 12 E	Belt chest Express Running belt ite Express Running belt ite Belt chest	Straight, sid eloaded  s chest Straight, sid eloaded  s chest Straight, sid eloaded	Both, early/learly Both, late/back Both, back/late Both, back/late Both, late/back Both, early/late Both, late/early Both, late/early	Left Right Left Right Left	Long-handed All	Long-handed																
Stack 12 E Stack 12 E	Express Running bet ited Belt chest	is — chest Straight, sideloaded	Both, back/late Both, back/late Both, late/back Both, early/late Both, late/early Both, late/early	Left Right Left		Long-handed																
CHART 12 E	Bett chest	Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded	Both, back/late Both, late/back Both, early/late Both, late/early Both, late/early	Right Left		All All		11.25 -7% 11.25 -7%	12.13	12.85 +6%			2.85 +6%			12.85 +6%			12.85 +6%	11.25 -7%		
	Belt → chest	Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded	Both, early/late Both, late/early Both, late/early		Long-handed	Long-handed		11.29 -/%	12.13	1200 10%			10%			42.00 10%			12.00 16%	11.25 -79		
	Belt → chest	Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded Straight, sideloaded	Both, late/early Both, late/early			Long-handed Long-handed																
	Belt → chest	Straight, sideloaded Straight, sideloaded Straight, sideloaded		Left		Long-handed																
	Belt → chest Belt → chest Belt → chest Belt → chest	Straight, sideloaded Straight, sideloaded		Right		Long-handed Long-handed																
	Belt → chest Belt → chest	Straight, sideloaded	Both, early/late Both, late/late	Left Right		Long-handed Long-handed																
	Belt → chest		Both, late/late	Left	Long-handed	Long-handed All																
		Straight, sideloaded Straight, sideloaded	Both, early/back Both, back/early	Towards Towards		All																
	Belt → chest Belt → chest	Straight, sideloaded Straight, sideloaded	Both, early/early Both, late/back	Towards Towards	Long-handed	All																
	Belt → chest	Straight, sideloaded	Both, back/late	Towards	Long-handed	All																
	Belt → chest Belt → chest	Straight, sideloaded Straight, sideloaded	Both, early/late Both, late/early	Towards Towards	Long-handed	All																
	Belt → chest	Straight, sideloaded	Both, late/late	Towards	Long-handed	All																
	Belt → chest Belt → chest	Straight, sideloaded Straight, sideloaded	Both, early/back Both, back/early	Away	Long-handed	Long-handed Long-handed																
Stack 12 Ex	Express Running belt iter	s → chest Straight, sideloaded	Both, early/early	Away	All	All		9.47 -10%	10.51	11.25 +7%			11.25 +7%			11.25 +7%			11.25 +7%	9.47 -10%		
	Belt → chest Belt → chest	Straight, sideloaded Straight, sideloaded	Both, late/back Both, back/late	Away Away	Long-handed Long-handed	Long-handed Long-handed																
	Express Running belt iter	s → chest Straight, sideloaded	Both, early/late	Away		All		10.00 -16%		12.85 +8%			12.85 +8%			12.85 +8%			12.85 +8%	10.00 -16%		
Stack 12 Ex Stack 12 Ex	Express Running belt iter	s → chest Straight, sideloaded	Both, late/early Both, late/late	Away	All	All		4.82 -40% 6.00 -22%		9.47 +18%			9.47 +18%			9.47 +18%			9.47 +18%	4.82 -40%		
Stack 12 Ex	Express Hunning bertiter Belt → chest	s → chest Straight, sideloaded Turn	Near	Away Right → towards		All	Tum, inner lane	6.00 -22%	7.68	11.73 +53%			11.73 +53%			11.73 +53%			11./3 +53%	6.00 -22%		
	Belt → chest	Tum	Near	Left → towards		All	Tum, inner lane															
Stack 12 Ex Stack 12 Ex	Express Running belt iter Express Running belt iter	s → chest Tum s → chest Tum	Near Near	Right → away Left → away		All All	Tum, outer lane Tum, outer lane	12.85 12.85	12.85 12.85	12.85 12.85			12.85			12.85			12.85	12.85		
Stack 12 Ex Stack 12 Ex	Express Running belt iter Express Running belt iter	s → chest Turn	Near Near	Towards → right Towards → left		All All	Tum, outer lane Tum, outer lane	12.85 12.85	12.85 12.85	12.85 12.85			2.85			12.85			12.85	12.85		
SHUK 12 EX	Belt → chest	s → cress Turn Turn	Near			Long-handed	Tum, inner lane	12.00	12.00	12.00						12.00			12.80	12.00		
	Belt → chest	Tum	Near	Away → left		Long-handed	Tum, inner lane															
	Belt → chest Belt → chest	Tum Tum	Far Far	Right → towards Left → towards	Long-handed	All	Turn, outer lane Turn, outer lane															
	Express Running belt iter Express Running belt iter		Far Far	Right → away Left → away	All	All All	Turn, inner lane Turn, inner lane	10.38 10.38	10.38 10.38	10.38 10.38			10.38			10.38			10.38	10.38		
Stack 12 Ex	Express Running belt iter	s → chest Turn	Far	Towards → right	All	All	Turn, inner lane	12.00	12.00	12.00			2.00			12.00			12.00	12.00		
Stack 12 Ex	Express Running belt iter Belt → chest	s → chest Turn Turn	Far Far	Towards → left		All Long-handed	Turn, inner lane Turn, outer lane	12.00	12.00	12.00			12.00			12.00			12.00	12.00		
	Belt → chest	Tum	Far	Away → left	Long-handed	Long-handed	Turn, outer lane															
	Belt → chest Belt → chest	Tum Tum	Both Both	Right → towards Left → towards		All	Turn, both lanes Turn, both lanes															
	Express Running belt iter	s → chest Turn	Both	Right → away	All	All	Turn, both lanes		8.62	10.00 +16%			10.00 +16%			10.00 +16%			10.00 +16%	8.18 -5%		
Stack 12 Ex Stack 12 Ex	Express Running belt iter Express Running belt iter	s → chest Turn	Both Roth	Left → away Towards → right		All All	Tum, both lanes Tum, both lanes	10.00 -6% 7.20 -2%	10.67 7.34	11.25 +5% 7.50 +2%			7.50 +2%			11.25 +5%			11.25 ±5%	7.00 -6%		
	Express Running belt iter	s → chest Turn	Both	Towards → left	All	All	Tum, both lanes	10.00 -14%	11.61				12.85 +11%			12.85 +11%			12.85 +11%	10.00 -14%		
$\vdash$	Belt → chest Belt → chest	Tum Tum	Both Both	Away → right Away → left	Long-handed Long-handed	Long-handed Long-handed	Turn, both lanes Turn, both lanes															
	Express Running belt iter	s → chest UG entrance	Near	Right	All	All	Underground, side, one lane	12.85	12.85	12.85			2.85			12.85			12.85	12.85		
Stack 12 Ex	Express Running belt iter Express Running belt iter	s → chest UG entrance	Near Far	Left Right		All All	Underground, side, one lane Underground, side, one lane	12.85 12.85	12.85 12.85	12.85 12.85			12.85			12.85			12.85	12.85		
Stack 12 Ex	Express Running belt iter	s → chest UG entrance	Far		All	All	Underground, side, one lane	12.85	12.85	12.85			2.85			12.85			12.85	12.85		
	Express Running belt iter Express Running belt iter	s → chest UG entrance	Right Left	Towards	All	All	Underground, front, one lane Underground, front, one lane	12.27 12.27	12.27 12.27	12.27 12.27			2.27			12.27			12.27	12.27		
	Belt → chest Belt → chest	UG entrance UG entrance	Right Left	Away	Long-handed	Long-handed	Underground, behind, one lane															
	Express Running belt iter	s → chest UG entrance	Both	Right	All	Long-handed All	Underground, behind, one lane Underground, side, both lanes	7.50 -14%		10.00 +15%	7.50 -14%	8.69	10.00 +15%	7.50 -14%	8.69	10.00 +15%		8.69	10.00 +15%	7.50 -14%	8.75	10.00 +14%
Stack 12 Ex	Express Running belt iter	s → chest UG entrance s → chest UG entrance	Both Both	Left Towards	All	All All	Underground, side, both lanes Underground, front/behind, both lanes	7.50 -14% 8.18 -18%		10.00 +15%	7.50 -14%	8.69 1	10.00 +15%	7.50 -14%	8.69	10.00 +15%		8.69	10.00 +15%	7.50 -14%	8.69	10.00 +15%
3 12 EX	Belt → chest	UG entrance	Both	Away	Long-handed	Long-handed	Underground, front/behind, both lanes	0.10 -18%	9.94	11.25 +13%			co +13%			11.25 +13%			11.20 +13%	0.18 -18%		
	Belt → chest Belt → chest	UG entrance, sideloade UG entrance, sideloade	ed Near, early	Right	Long-handed	Long-handed Long-handed	Underground, sideloaded onto empty belt Underground, sideloaded onto empty belt															
	Express Running belt iter	s → chest UG entrance, sideloade	ed Far, early	Right	All	All	Underground, sideloaded onto empty belt	6.42	6.42	6.42			6.42			6.42			6.42	6.42		
		s → chest UG entrance, sideloade s → chest UG entrance, sideloade		Left Towards		All All	Underground, sideloaded onto empty belt Underground, sideloaded onto empty belt	6.42 7.50 -4%	6.42 7.82	6.42 8.18 +5%		7.50	7.50		7.50	7.50	6.42 8.18	8.18	6.42	8.18	8.18	
Stack 12 Ex	Express Running belt iter	s → chest UG entrance, sideloade	ed Left, early	Towards Towards	All	All	Underground, sideloaded onto empty belt	7.50 -4%	7.82	8.18 +5%	8.18	8.18	8.18	8.18	8.18	8.18		7.50	7.50	7.50	7.50	7.50
Stack 12 Ex Stack 12 Ex	Express Running belt iter Express Running belt iter	s → chest UG entrance, sideloade s → chest UG entrance, sideloade	ed Right, early	Away Away		All All	Underground, sideloaded onto empty belt Underground, sideloaded onto empty belt	9.00 -2% 9.00 -2%	9.23 9.23	9.47 +3% 9.47 +3%	9.47	9.00 9.47	9.00	9.47	9.00 9.47	9.00	9.47	9.47	9.00	9.47	9.47 9.00	9.00
Stack 12 Ex	Express Running belt iter	s → chest UG entrance, sideloade	ed Both, early/back	Right	All	All		10.00 -15%	11.80	12.85 +9%	10.00 -15%	11.80	2.85 +9%	10.00 -15%	11.80	12.85 +9%		9.00	12.85 +9%	10.00 -15%	11.80	12.85 +97
Stack 12 Ex	Express Running belt iter Belt → chest	s → chest UG entrance, sideloade UG entrance, sideloade	ed Both, back/early	Left	All	All Long-handed		10.00 -15%		12.85 +9%			2.85 +9%			12.85 +9%			12.85 +9%	10.00 -15%		
	Belt → chest	UG entrance, sideloade	ed Both, early/back	Left	Long-handed	Long-handed																
	Belt → chest Belt → chest	UG entrance, sideloade UG entrance, sideloade	d Both, early/early	Right Left	Long-handed	Long-handed																
Stack 12 Ex	Express Running belt iter	s → chest UG entrance, sideloade	ed Both, early/back	Towards	All	Long-handed All		6.00 [77] -36%	9.33	11.25 +21%			11.25 +21%			11.25 +21%			11.25 +21%	6.00 -36%		
Stack 12 Ex	Express Running belt iter	s → chest UG entrance, sideloade	d Both, back/early	Towards Towards	All	All		10.00 -14%	11.61 8.58	12.27 +6%	10.00 -14%	8.57	11.25	10.00 -14%	8.57	11.36 - 047		8.60	12:27 +616	10.00 -14%	8.60	12.27 +010
Switch 12 EX	Belt → chest	s → chest UG entrance, sideloade UG entrance, sideloade	ed Both, early/back	Away	Long-handed	Long-handed		6.00 -30%	6.58	11.73 +37%	0.00 -30%	0.57	11.20 +31%	6.00 -30%	0.5/	11.25 +31%		8.60	11.73 +36%	6.00 -30%	8.60	11.73 +36%
Ottoria ·	Belt → chest	UG entrance, sideloade	ed Both, back/early	Away	Long-handed	Long-handed All		am	0.00	44.70	0.00	7.91	11.73 +48%	0.00	8.08	11.73 +45%		8.05	44.05	0.00	0.07	44 ee
Stack 12 Ex	Express Running belt iter	s → chest UG entrance, sideloade s → chest UG exit	Near		All	All	Underground, side, one lane	13.50	8.02 13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50		13.50	13.50	13.50	13.50	11.25 +40%
Stack 12 Ex	Express Running belt iter	s → chest UG exit	Near	Left	All	All All	Underground, side, one lane	13.50	13.50	13.50 13.50			13.50			13.50			13.50	13.50		
Stack 12 Ex Stack 12 Ex	Express Running belt iter Express Running belt iter	u → cnest UG exit s → chest UG exit	Far Far	Right Left		All	Underground, side, one lane Underground, side, one lane	13.50 13.50	13.50 13.50	13.50 13.50			3.50 13.50			13.50			13.50	13.50		
	Belt → chest	UG exit	Right	Towards	Long-handed	All	Underground, front, one lane															
Stack 12 Ex	Belt → chest Express Running belt iter	UG exit s → chest UG exit	Left Right	Towards Away		All All	Underground, front, one lane Underground, behind, one lane	9.00	9.00	9.00			9.00			9.00			9.00	9.00		
Stack 12 Ex	Express Running belt iter	s → chest UG exit	Left	Away		All	Underground, behind, one lane	9.00	9.00	9.00			9.00			9.00			9.00	9.00		
Stack 12 Ex Stack 12 Ex	Express Running belt iter Express Running belt iter	s → chest UG exit s → chest UG exit	Both Both	Right Left	All	All	Underground, side, both lanes Underground, side, both lanes	10.00 -13% 10.00 -13%	11.43 11.43	12.85 +12% 12.85 +12%			12.85 +12% 12.85 +12%			12.85 +12%			12.85 +12%	10.00 -13%		
	Belt → chest	UG exit	Both	Towards	Long-handed	All	Underground, front/behind, both lanes															
Stack 12 Ex	Express Running belt iter Belt → chest	UG exit, sideloaded	Both Near, late	Away Right	Long-handed	All Long-handed	Underground, frontbehind, both lanes Underground, sideloaded onto empty belt	8.18 -18%	9.94	11.25 +13%			11.25 +13%			11.25 +13%			11.25 +13%	8.18 -18%		
	Belt → chest	UG exit, sideloaded	Near, late	Lett	Long-handed	Long-handed	Underground, sideloaded onto empty belt															
		s → chest UG exit, sideloaded s → chest UG exit, sideloaded	Far, late Far, late	Right Left	All	All All	Underground, sideloaded onto empty belt Underground, sideloaded onto empty belt	10.00	10.00	10.00			10.00			10.00			10.00	10.00		
12 Ex	Belt → chest	UG exit, sideloaded	Right, late	Towards	Long-handed	All	(Excluded from "UG, sideloaded onto empty belt")	10.00	.0.00	10.00									10.00	10.00		
Stack 12 Ex	Belt → chest	UG exit, sideloaded s → chest UG exit, sideloaded	Left, late Right, late	Towards Away	Long-handed	All All	(Excluded from "UG, sideloaded onto empty belt") (Excluded from "UG, sideloaded onto empty belt") [	9.47	9.47	9.47			0.47			0.77			0.47	0.47		
Stack 12 Ev	Eventess Running helt iter	s chest LIG evit sidelinaded	Left, late	Away	All	All	(Excluded from "UG, sideloaded onto empty belt") [ (Excluded from "UG, sideloaded onto empty belt")	9.47	9.47	9.47			9.47			9.47			9.47	9.47		
Stack 12 Ex	Express Running belt iter	s → chest UG exit, sideloaded s → chest UG exit, sideloaded	Both, late/back Both, back/late	Right Left	All	All All		11.25 -13% 11.25 -13%	12.90 12.90	13.50 +5% 13.50 +5%			3.50 +5%			13.50 +5% 13.50 +5%			13.50 +5%	11.25 -13%		
	Belt → chest Belt → chest	UG exit, sideloaded UG exit, sideloaded	Both, back/late Both, late/back	Right		Long-handed		-10%					1VA									

nserter		Belt					Possible for ins			Items/second				outh direction (4			est direction [42]			orth direction [4		Dito, west→ea		
ype	Stack siz	е Туре	Move type	Belt tile	Belt lanes [45]	Orientation [46]	Running belt i	ite Queued belt its	Grouped belt type (used in "detailed" sheet)	Min [47] [48]	Mean [49]	Max [50] [51]	Min [52] [53]	Mean [54]	Max [55] [56]	Min [57] [58]	Mean (59)	Max [60] [61]	Min [62] [63]	Mean [64]	Max [65] [66]	Min [67] [68]	Mean [69]	Max [70] [7
			Belt → chest	UG exit, sideloaded	Both, late/late	Right	Long-handed	Long-handed																
			Belt → chest	UG exit, sideloaded	Both, late/late	Let	Long-handed	Long-handed																
			Belt → chest	UG exit, sideloaded	Both, late/back	Towards	Long-handed	All																
			Belt → chest	UG exit, sideloaded	Both, back/late	Towards	Long-handed	All																
			Belt → chest	UG exit, sideloaded	Both, late/late	Towards	Long-handed	All																
tack	12	Express	Running belt items → chest	UG exit, sideloaded	Both, late/late	Away	All	All		6.00 -225	7.68	11.73 +53%	6.00 -22%			6.00 -22			6.00 -221			6.00 -2290		
tack	12	Express	Running belt items → chest	UG exit, sideloaded	Both, late/back	Away	All	All		6.00 -359	9.25	11.73 +27%	6.00 -35%			6.00 -39			6.00 -359			6.00 -35%		
Stack	12	Express	Running belt items → chest	UG exit, sideloaded	Both, back/late	Away	All	All		10.00 -125	11.30	12.27 +9%	10.00 -12%			10.00 -12			10.00 -125			10.00 -129		
Stack	12	Express	Running belt items → chest	Splitter [79]	Near, exit close	Right	All	All	Splitter, side, one lane, nonblocked exit	12.27	12.27	12.27	12.27			12.27			12.27			12.27		
Stack	12	Express	Running belt items → chest	Splitter (80)	Near, exit close	Let	All	All	Splitter, side, one lane, nonblocked exit	12.27	12.27	12.27	12.27			12.27			12.27			12.27		
Stack	12	Express	Running belt items → chest	Splitter [81]	Near, exit other	Right	All	All	Splitter, side, one lane, blocked exit	9.47	9.47	9.47	9.47			9.47			9.47			9.47		
Stack	12	Evnmess	Running belt items → chest	Solitter (82)	Near, exit other	Let	All	All	Splitter, side, one lane, blocked exit	9.47	9.47	9.47	9.47			9.47			9.67			9.47		
Stack	12		Running belt items → chest			Right	All	All	Solitter side one lane pophlocked evit	10.00	10.00	10.00	10.00			10.00			10.00			10.00		
Stack	12		Running belt items → chest			Left	All	All	Splitter, side, one lane, nonblocked exit	10.00	10.00	10.00	10.00			10.00			10.00			10.00		
Stack	12		Running belt items → chest			Right	All	All	Splitter, side, one lane, blocked exit	9.00	9.00	9.00	9.00			9.00			9.00			9.00		
Stack	12		Running belt items → chest			Let	All	All	Splitter side, one lane, blocked exit	9.00	9.00	9.00	9.00			9.00			9.00			9.00		
		,	Belt → chest	Splitter (87)	Right, exit close	Towards	Long-handed	All																
			Belt → chest	Splitter (88)		Towards	Long-handed	All																
Stack	12	Evnmess	Running belt items → chest			Towards	All	All	Solitter, front/behind, one lane, blocked exit	9.00 -35	9.32	9.40 +1%	9.00 .3%			9.00 .3			9.00 .39			9.00 .39		
Stack	12		Running belt items → chest			Towards	All	All	Solitter, front/behind, one lane, blocked exit	9.00 -35		9.40 +1%	9.00 .3%			9.00 .3			9.00 .39			9.00 .39		
Stack	12		Running belt items → chest			Away	All	All	Opinior, increase into, one mine, account and	9.64	9.64	9.64	0.64			9.64			9.64			9.64		
Stack	12		Running belt items → chest			Away	All	All		9.64	9.64	9.64	9.64			9.64			9.64			9.64		
Stack	12		Running belt items → chest			Away	All	All	Solitter, front/behind, one lane, blocked exit	9.00 -49	9.35	9.47 +1%	9.00 486			9.00 -4			9.00 45			9.00 -49		
Stack	12		Running belt items → chest			Away	All	All	Solitter front/hebind one lane blocked exit	9.00 -45		9.47 +1%	9.00 486			9.00 -4			9.00 45			9.00 -49		
Stack	12		Running belt items → chest		Both, exit close/close		All	All	Splitter, side, both lanes, nonblocked exit	8.57 -179		12.85 +24%	0.57 1700			0.57 17			0.67 170			0.67 1700		
Stack	12		Running belt items → chest		Both, exit close/close		All	All	Splitter, side, both lanes, nonblocked exit	8.57 -179		12.85 +24%	0.07 170			0.07 17			0.57 170			0.07 170		
Stack	12		Running belt items → chest		Both, exit close/other		AU.	All	Opinios, ande, doct taries, nondicined exe	9.00 -35		9.47 +2%	0.00 .00			0.00			9.00 .39			9.00 .386		
Stack	12		Running belt items → chest		Both, exit other/close		AU.	All		9.00 -31		9.47 +2%	0.00			0.00			0.00			9.00 .38		
Stack	12		Running belt items → chest		Both, exit other/close		All	Al		7.50	7.50	7.50	7.50			7.50			7.50			7.50		
Stack	12		Running belt items → chest		Both, exit close/other		All	All		7.50	7.50	7.50	7.50			7.50			7.50			7.50		
Stack	12		Running belt items → chest		Both, exit other/other		All .	All	Splitter, side, both lanes, blocked exit	10.58	10.58	10.58	10.00			10.00			10.59			10.50		
Stack	12		Running belt items → chest		Both, exit other/other		All .	All	Splitter, side, both lanes, blocked exit	10.58	10.58	10.58	10.50			10.00			10.00			10.00		
SHUK	12	Express	Belt → chest	Splitter [102]	Both, exit close/close		Long-handed		Spritter, side, both laines, blocked exit	10.56	10.56	10.56	10.55			10.55			10.50			10.55		
			Belt → chest	Splitter [104]	Both, exit close/other		Long-handed	All		-														
			Belt → chest	Splitter [104]	Both, exit other/close		Long-handed																	
Stack	12	F	Running belt items → chest		Both, exit other/other		Long-nanoed	Al	Splitter, front/behind, both lanes, blocked exit	12.00	12.00	12.00	40.00			40.00			40.00			40.00		
Stack	12		Running belt items → chest		Both, exit close/close		All	All	Openius, increasurano, sodii fallies, diddiadi exit	6.00 -349		11.73 +29%	0.00 0/00			0.00 24			0.00 040			0.00 0.00		
Stack	12		Running belt items → chest		Both, exit close/other		T	All		10.00	10.00	10.00	10.00			40.00			10.00			40.00		
stack Stack	12		Running belt items → chest Running belt items → chest		Both, exit close/other Both, exit other/close		All	Al		11.25 -81		12.85 +5%	10.00			10.00			10.00			10.00		
stack Stack							PAIL	Al	L	12.00 -25		12.85 +5%	11.00 -000			11.25 -8			111.42			11.25 -8%		
STRICK	12	Express	Running belt items → chest	Spitter [110]	Both, exit other/other	Away	All	All	Splitter, front/behind, both lanes, blocked exit	12.00 -29	% 12.28	12.85 +5%	12.00 -2%			12.00 -2			12.00 -23			12.00 -290		

Raw data ids	Display strings														
stack-inserter	Stack														
fast-inserter	Fast														
long-handed-inserter															
inserter	Basic														
burner-inserter	Burner														
express-transport-bel															
fast-transport-belt	Fast														
transport-belt	Basic														
							Expected nur	mber of tests, pr	er direction			Number of bel	t tile types		
	Running belt items or no be	it		Queued belt items			Running belt	titems	Queued belt	items		Running belt it	(ems	Queued belt	it items
Test group id	Display strings	Belt tile classification, detailed	Belt tile classification, summary	Display strings	Belt tile classification, detailed	Belt tile classification, summary	All inserters	Long-handed	All inserters	Long-handed	Active lanes	All inserters	Long-handed	All inserters	s Long-hand
	7 Belt	One lane	One lane					8 8		1 1		1			
-	5 Belt	Both lanes	Both lanes				6-	4 64		1 1		2			
4	5 Belt	One lane	One lane					8 8		1 1	1	1			
	4 Belt	Both lanes	Both lanes				6-	4 64		1 1	- 2	2			
4	3 Belt	One lane	One lane					8 8		1 1	1	1			
	2 Belt	Both lanes	Both lanes				6-	4 64		1 1		2			
	1 Chest → chest		Any					1 1		1 1					
	Chest → belt	Non-splitter	Any				15	5 17		0 0		15	17	1	0
	1 Chest → belt	Solitter	Any					3 3		0 0		3	3	3	0
	Running belt items → ches	Straight, side, near lane	One lane, side or inner lane turn	Queued belt items → che	st Straight, side, near lane	One lane, side or inner lane turn	11	6 16		2 2		2	2	2	2
	Running belt items → ches		One lane, side or inner lane turn	Queued belt items → che		One lane, side or inner lane turn	11	6 16		2 2		2	2	2	2
	Running belt items → ches		Both lanes, side, no turn	Queued belt items → che	st Straight, side, both lanes	Both lanes, side, no turn	121	8 128		2 2		2 2	2	2	2
		Straight, side, sideloaded onto empty belt			st Straight, side, sideloaded onto empty belt		3;	2 64		4 8		4		3	4
	8 Running belt items → ches				st Straight, towards, one lane			0 16		2 3		1 0	2	,	2
		Straight, towards, both lanes			st Straight, towards, both lanes			0 64		1 1		0		1	1
	B Running belt items → ches			Queued belt items → che			3:			5 5		1 4		a	6
	Running belt items → ches		One lane, side or inner lane turn	Queued belt items → che		One lane, side or inner lane turn	3			6 5		1 4		a	6
	Running belt items → ches			Queued belt items → che			256								6
		Underground, side, one lane	One lane, side or inner lane turn		st Underground, side, one lane	One lane, side or inner lane turn	6-							-	
		Underground, side, both lanes	Both lanes, side, no turn		st Underground, side, both lanes	Both lanes, side, no turn	250								4
		Underground, front, one lane	Bout sales, side, no tulii		st Underground, front, one lane	Both laries, side, no tuni	11								-
		Underground, behind, one lane			st Underground, behind, one lane		19					. 2	-		2
		Underground, front/behind, both lanes			st Underground, front/behind, both lanes		121					2		•	2
		Underground, sideloaded onto empty belt			st Underground, sideloaded onto empty belt		121				1 .		12		8
		Splitter, side, one lane, blocked exit			st Underground, sideloaded onto empty belt st Solitter, side, one lane, blocked exit	One lane, side or inner lane turn	33			12			12		4
				Queueu peit items → che	si opiliter, side, drie lane, blocked exit	One rane, side or either lane turn									0
		Splitter, side, one lane, nonblocked exit	One lane, side or inner lane turn				3:				1	4	4		
		Splitter, front/behind, one lane, blocked exit			st Splitter, front/behind, one lane, blocked exit		3:					4	4		4
		Splitter, side, both lanes, blocked exit		Queued belt items che	st Splitter, side, both lanes, blocked exit		121			2 2	1 4	. 2	2		2
		Splitter, side, both lanes, nonblocked exit					121			0 0	1 2	2	2		0
2	2 Running belt items → ches	Splitter, front/behind, both lanes, blocked exit		Queued belt items → che	st Splitter, front/behind, both lanes, blocked exit		121	8 128		2 2	1 2	2	2	ž .	2

Chest → belt Straight Right n/a n/a n/a n/a Right turn Left Left turn Towards UG entrance Away Splitter [111]  Belt → chest Straight Right Empty Full n/a Right turn Left Full Empty Left turn Towards Full Full UG entrance UG exit  Straight, sideload Right Empty Fed from side, early Fed from side, early Fed from side, early Fed from back Fed from side, early Fed from side, early Fed from side, late Fed from side, early Fed from side, late	/a	5x4=  5x4x3=  4x12=	60
Left turn UG entrance UG entrance Splitter [111]  Belt → chest Straight Right Left Full Empty Full Empty Full Empty Full Full UG entrance Away UG exit  Straight, sideloac Right Empty Fed from side, early Fed from side, early Fed from side, early Fed from side, early Fed from side, late Fed from side, early Fed from side, late			
UG entrance Splitter [111]  Belt → chest Straight Right turn Left Full Left turn Towards Full Full  UG entrance Away UG exit  Straight, sideloac Right Left Empty Fed from side, early Left Empty Fed from side, early Fed from side, late Fed from side, early Fed from side, early Fed from side, late Fed from side, late Fed from side, late Fed from side, early Fed from side, late			
Splitter [111]  Belt → chest Straight Right Empty Full n/a Right turn Left Full Empty Left turn Towards Full Full UG entrance Away UG exit  Straight, sideloac Right Empty Fed from side, early n/a Left Empty Fed from side, late Fed from back Fed from side, late Fed from side, early Fed from side, late Fed from side, early Fed from side, late			
Belt → chest Straight Right Empty Full n/a Right turn Left Full Empty Left turn Towards Full Full UG entrance Away UG exit  Straight, sideloac Right Empty Fed from side, early Left Empty Fed from side, late Towards Fed from back Fed from side, late Fed from side, early Fed from side, late Fed from side, early Fed from side, late Fed from side, early Fed from side, late			
Right turn Left turn Towards Full Full  UG entrance Away  UG exit  Straight, sideloac Right Left Empty Fed from side, early Away Fed from back Fed from side, early Fed from side, late Fed from side, early Fed from side, late Fed from side, late Fed from side, late			
Right turn Left turn Towards Full Full  UG entrance Away  UG exit  Straight, sideloac Right Left Empty Fed from side, early Away Fed from back Fed from side, early Fed from side, late Fed from side, early Fed from side, late Fed from side, late Fed from side, late	'a	4x12=	48
Left turn UG entrance Away UG exit  Straight, sideloac Right Left Empty Fed from side, early Away Fed from back Fed from side, early Fed from side, late Fed from side, early Fed from side, late	/a	4x12=	48
UG entrance UG exit  Straight, sideloac Right  Empty  Fed from side, early  Away  Fed from back  Fed from back  Fed from side, early  Fed from side, late  Fed from side, early  Fed from side, late  Fed from side, late  Fed from side, late	/a	4x12=	48
Straight, sideloac Right Empty Fed from side, early n/a Left Empty Fed from side, late Towards Fed from back Fed from side, late Fed from back Fed from side, late Fed from side, early Empty Fed from side, early Fed from back Fed from side, early Fed from back Fed from side, early Fed from side, early Fed from side, early Fed from side, late Fed from side, early Fed from side, late	/a	4x12=	48
Left Empty Fed from side, late Towards Fed from back Fed from side, early Away Fed from back Fed from side, late Fed from back Fed from side, late Fed from side, early Fed from side, late Fed from side, early Fed from side, late	/a	4x12=	48
Left Empty Fed from side, late Towards Fed from back Fed from side, early Away Fed from back Fed from side, early Fed from side, early Fed from back Fed from side, early Fed from side, late Fed from side, early Fed from side, late	a	TA12-	40
Towards Fed from back Fed from side, early Away Fed from back Fed from side, late Fed from side, early Fed from back Fed from side, early Fed from back Fed from side, early Fed from side, early Fed from side, early Fed from side, late Fed from side, early Fed from side, late			
Away Fed from back Fed from side, late Fed from side, early Empty Fed from side, early Fed from back Fed from side, early Fed from side, early Fed from side, early Fed from side, late Fed from side, early Fed from side, late			
Fed from side, early Fed from back Fed from side, early Fed from back Fed from side, early Fed from side, early Fed from side, early Fed from side, late Fed from side, early Fed from side, late			
Fed from side, early Fed from side, late Fed from side, early Fed from side, late			
Fed from side, early Fed from side, early Fed from side, early Fed from side, late Fed from side, early Fed from side, late			
Fed from side, early Fed from side, late  Fed from side, late Empty  Fed from side, late Fed from back  Fed from side, late Fed from side, early  Fed from side, late Fed from side, late  UG entrance, sid Right Empty Fed from side, early  Left Fed from back Fed from side, early  Towards Fed from side, early Empty  Away Fed from side, early  Fed from side, late			
Fed from side, late Empty Fed from side, late Fed from back Fed from side, late Fed from side, early Fed from side, late Fed from side, late  UG entrance, sid Right Empty Fed from side, early Left Fed from back Fed from side, early Towards Fed from side, early Empty Away Fed from side, early Fed from back Fed from side, early Fed from side, late			
Fed from side, late Fed from back Fed from side, late Fed from side, early Fed from side, late Fed from side, late Fed from side, late Fed from side, late  UG entrance, sid Right Left Fed from back Fed from side, early Towards Fed from side, early Fed from back Fed from side, early Fed from back Fed from side, early Fed from side, late			
Fed from side, late Fed from side, early Fed from side, late Fed from side, late  UG entrance, sid Right Left Fed from back Fed from side, early Towards Fed from side, early Empty Fed from side, early Empty Fed from back Fed from side, early Fed from side, late			
UG entrance, sid Right Empty Fed from side, early n/a Left Fed from back Fed from side, early Towards Fed from side, early Empty Away Fed from side, early Fed from back Fed from side, early Fed from back Fed from side, early Fed from side, early UG exit, sideload Right Empty Fed from side, late Left Fed from back Fed from side, late Towards Fed from side, late Empty			
UG entrance, sid Right Empty Fed from side, early n/a  Left Fed from back Fed from side, early  Towards Fed from side, early Empty  Away Fed from side, early Fed from back  Fed from side, early  Fed from side, early  UG exit, sideload Right Empty Fed from side, late  Left Fed from back Fed from side, late  Towards Fed from side, late Empty			
Left Fed from back Fed from side, early Towards Fed from side, early Empty Away Fed from side, early Fed from back Fed from side, early Fed from side, early Fed from side, early  UG exit, sideload Right Empty Fed from side, late Left Fed from back Fed from side, late Towards Fed from side, late Empty			
Towards Fed from side, early Empty  Away Fed from side, early Fed from back Fed from side, early Fed from side, early  UG exit, sideload Right Empty Fed from side, late Left Fed from back Fed from side, late Towards Fed from side, late Empty	/a	4x5=	20
Away Fed from side, early Fed from back Fed from side, early Fed from side, early  UG exit, sideload Right Empty Fed from side, late Left Fed from back Fed from side, late Towards Fed from side, late Empty			
UG exit, sideload Right Empty Fed from side, early  Left Fed from back Fed from side, late  Towards Fed from side, late Empty			
UG exit, sideload Right Empty Fed from side, late n/a  Left Fed from back Fed from side, late  Towards Fed from side, late Empty			
Left Fed from back Fed from side, late  Towards Fed from side, late Empty			
Left Fed from back Fed from side, late  Towards Fed from side, late Empty	/a	4x5=	20
Towards Fed from side, late Empty		I.N.O	
Away Fed from side, late Fed from back			
Fed from side, late Fed from side, late			
		1.00	- 10
	lose	4x2x2=	16
	ther		
Towards			
Away			
Splitter [113] Right Full Full Clo	lose/Close	4x4=	16
	lose/Other		
Towards Otl	ther/Close		
Away	ther/Other		
		Belt → chest total:	180

### Test savegame

Supporting mod, mainly for exporting test results to this spreadsheet

### General

Test rigs are created by enumerating all possible source and target tile setups. In the "all belt tiles" sheet they are measured individually, but in the "detailed" and "summary" sheets they are grouped so that similar setups (e.g. belt moving left  $\rightarrow$  right and right  $\rightarrow$  left past an inserter) contribute to a single min/mean/max measurement.

To determine throughput we measure how long it takes to do a certain number of inserter hand turns, and then divide the number of moved items by that. Due to interactions with the environment, one hand turn can be slightly different from the next, but eventually the inserter will repeat itself; we call the sequence from a hand turn to the next identical one the "natural cycle" of the inserter. Testing shows the natural cycles commonly are 1-3 hand turns, but they can also be 4 or 5 or possibly even longer. The goal is to measure the time over a whole number of natural cycles, but to avoid overly long test times we compromise to 12 hand turns. There is also a "warmup" period of 6 hand turns before measurement starts to let the inserter settle into its natural cycle; testing shows longer warmups very rarely improves accuracy.

Since Factorio is fully determinstic measurements are very precise: If the natural cycle divides 12 there is no measurement error at all, otherwise there might be ±1 tick error. That means the spans between min and max for many measurements are due to other factors, discussed below.

Burner inserters are affected by refueling. Their speed often increase by a few ticks when they are refueled, but it can also decrease slightly. Here that source of error is eliminated by refueling only between test runs.

Filter and stack filter inserters only differ from their non-filter brethren by functionality. They should have exactly the same performance in every way and are hence not measured.

### Chest → chest

Testing belt and chest  $\rightarrow$  chest throughput is straightforward since they only depend in the belt/inserter type.

With "chest" we mean any non-belt item container, like machine inputs or outputs, cargo wagons, and chests. Infinite chests are used in all test rigs.

## Chest → belt

Chest  $\rightarrow$  belt are tested for every different type of belt tile, but only for output onto empty belts that don't get backed up. There aren't that many, since inserters always put items on the far or right side.

Tests are also done for three different stack sizes, corresponding to the inserter capacity bonus tech levels when non-stack inserters gain capacity.

# Belt → chest

There is a total of 180 different belt tile setups if we consider items on one or both lanes (see the "belt tile type enumeration" sheet). Only long-handed inserters can use all of them - for other inserters many are invalid since the inserter itself gets in the way (it is e.g. not possible to have a straight belt tile full of moving items going away from the inserter). The "all belt tile types" sheet lists them all and groups them for the "detailed" sheet (also leaving out many setups that aren't considered important enough). They are grouped further for the "summary" sheet through a table in "lookup tables".

The following factors are taken into consideration:

- Belt item phase: Since the inserter hand homes in on the items on the belt, the exact positions of the items when the hand is ready to pick matters. On a fully compressed belt, items in a lane can be in any of 256/4=64 positions, aka phase shift, before they repeat. Since it is impractical to time inserters and belt phase in real gameplay, we aim to test all different phase shifts to get a reliable minimum throughput. For an exhaustive test, we should therefore test all 64 phase shifts per lane (i.e. 64\*64=4096 test runs for tests using both lanes).

Here phase shifts are accomplished by releasing the belt items on a specific game tick relative to the inserter activation. Since items are moved a multiple of 8 positions per tick on belts of any type, that means we can only test 64/gcd(64,8)=8 different phase shifts per lane. For tests with items in both lanes it becomes 8\*8=64 runs. (Releasing items with higher precision than this is possible but difficult.)

Basic and express belts have speeds 8 and 24 positions/tick respectively. gcd(64,8)=gcd(64,24)=8, so for those belt types we get the 8 phase shifts through timing only. However, fast belts have speed 16, and since gcd(64,16)=16 we need two different release mechanisms per lane to get all 8 phase shifts. That is done by alternating between "early" and "late" sideloading of a belt tile.

- Inserter directions: Factorio has had bugs that causes the orientation of an inserter to affect its hand movement in subtle ways, which can affect the throughput. These issues have been addressed over time, but some still remain. The test rigs are rotated in all four cardinal directions to cover this, and some tests are repeated in specific directions to tell if the variance is due to direction or something else.
- Belt compression: Measurements are made with belt lanes either empty or fully compressed. Partial compression will affect throughput, but this is not measured.
- Running vs queued belts: The items can either pass by or stop on the belt tile if it gets backed up. We only test the two extremes; either a belt where items never back up or one where they always do. Belt item phase is only taken into consideration for running belts.
- Stack size: Like for chest → belt, we test three different stack sizes.
- Mirror symmetries etc: Whether items e.g. pass by the inserter left → right or right → left ought not matter. Still no assumptions are made regarding that, and all those different cases are treated separately in the belt tile type enumeration.

## $\textbf{Belt} \rightarrow \textbf{belt}$

Measuring this requires building every combination of the belt  $\rightarrow$  chest test rigs (for the source tile) and chest  $\rightarrow$  belt (for the target tile), i.e. an order of magnitude more test rigs than all of the above combined. It is also very rarely a useful setup. Hence it is left out completely.

## The test savegame

One of 1600+ test rigs with the measurement capture circuitry:



Tests are grouped into "testsuites", where each one generally tests a single type of inserter with a single belt. There is an "experimental" testsuite that tests miscellaneous things which is used for the "all belt tile types" sheet.

A test rig tests all four cardinal directions. In all testsuites except the "experimental" one, test rigs are grouped and the min, max, sum and count are collected for the whole group.

# Global test settings:

- I: Stack size in inserter hand.
- W: Number of "warmup" inserter hand turns.
- A: Number of hand turns to measure over.
- B: Number of times to repeat the A cycle. This is usually 1 but can be set higher to check how well A works.
- "1", "2", "3", "4": Controls which test rig directions to enable in the test runs: "1" enables all the inserters that move items north  $\rightarrow$  south, "2" for east  $\rightarrow$  west, "3" for south  $\rightarrow$  north, "4" for west  $\rightarrow$  east.
- O: Test run to start at.
- V: Test run to end at.

## Control signals:

- E: Enable tests for a new run.
- S: Saves the test results for later comparison.
- A: Enable alerts when saved and latest test results are different.

### Full test run for "detailed" sheet:

- 1. Set the constant combinator at "Main test settings" to I=3, W=6, A=12, B=1, O=0, V=64, and "1", "2", "3", "4" to 1.
- 2. Enter "/activate-input-loaders" in the Lua console to measure running belt items.
- 3. Enable the E=1 combinator and wait for all testsuites to finish by watching for the "E" programmable speaker alerts. This runs 64 test cycles to go through all belt item phases and takes ~1½h.
- 4. Enter "/export-results". This writes out a results-tick-xxx.csv file to the script-output directory that can be imported into the "detailed" sheet.
- 5. Repeat steps 2-4 for I=2 and I=1 to cover the different stack sizes.
- 6. Optionally repeat some of the tests above with different test settings, e.g. for specific inserter directions by setting some of "1", "2", "3", "4" to zero.
- 7. Set I=3, O=64, V=65, and "1", "2", "3", "4" to 1.
- 8. Enter "/deactivate-input-loaders". This stops all loaders from belt to chest, so that queued belt items→chest can be measured.
- 9. Repeat steps 2-6. There is only one test cycle each since belt item phase doesn't matter for queued belts.

Test runs for the "all belt tile types" sheet are similar but use the "experimental" testsuite, which is exported to csv with "/export-results-experimental". This testsuite also measures belt speeds.

Chest → chest		Blocked belt	FALSE	Test group id	-1	
Stack size	Belt type	burner-inserter	inserter	ng-handed-insert	fast-inserter	stack-inserter
1		0.5940594059	0.8333333333	1.176470588	2.307692308	
2		1.188118812	1.666666667	2.352941176	4.615384615	4.615384615
3		1.782178218	2.5	3.529411765	6.923076923	
4						9.230769231
5						
6						
8						
10						
12						27.69230769
Chest → belt		Blocked belt	FALSE	Test group id	0	
Stack size	Belt type	burner-inserter	inserter	ng-handed-insert	fast-inserter	stack-inserter
1	transport-belt	0.5940594059	0.8333333333	1.176470588	2.307692308	
1	fast-transport-be		0.8333333333	1.176470588	2.307692308	
1	express-transpor		0.8333333333	1.176470588	2.307692308	
	transport-belt	1.176470588	1.643835616		4.44444444	4.44444444
	fast-transport-be		1.643835616	2.307692308	4.44444444	4.444444444
	express-transpor		1.643835616		4.44444444	4.44444444
	transport-belt	1.651376147	2.25		5.294117647	
3	-		2.368421053		6	
	express-transpor		2.432432432	3.396226415	6.428571429	
	transport-belt	1.747372010	2.432432432	3.390220413	0.42037 1429	5.714285714
	fast-transport-bei	l+				7.058823529
	express-transport					7.038823328
		t-beit				7.741933464
	transport-belt	4				
	fast-transport-be					
	express-transpor	t-beit				
	transport-belt					
	fast-transport-be					
	express-transpor	t-beit				
	transport-belt					
	fast-transport-be					
	express-transpor	t-beit				
	transport-belt					
	fast-transport-be					
	express-transpor	t-belt				
	transport-belt					6.79245283
	fast-transport-be					10.90909091
12	express-transpor	t-belt				13.84615385
Running belt ite	ms → chest	Blocked belt	FALSE	Test group id	2	
Stack size	Belt type	burner-inserter	inserter	ng-handed-insert	fast-inserter	stack-inserter

	2.25	1.071428571	0.8108108108	0.5	transport-belt	1
	2.142857143	1	0.75	0.5	fast-transport-bel	1
	1.875	0.9375	0.6818181818	0.45	express-transpor	1
3.75	3.75	2.142857143	1.5	1	transport-belt	2
3.75	3.75	1.875	1.428571429	0.9677419355	fast-transport-bel	2
3.461538462	3.461538462	1.764705882	1.304347826	0.8823529412	express-transpor	2
	4.5	2.647058824	2.045454545	1.384615385	transport-belt	3
	5	2.8125	2.045454545	1.451612903	fast-transport-bel	3
	4.5	2.647058824	1.956521739	1.323529412	express-transpor	3
5					transport-belt	4
6				t	fast-transport-belt	4
6				:-belt	express-transport	4
					transport-belt	5
				t	fast-transport-belt	5
				:-belt	express-transport	5
					transport-belt	6
				t	fast-transport-belt	6
				:-belt	express-transport	6
					transport-belt	8
				t	fast-transport-belt	8
				:-belt	express-transport	8
					transport-belt	10
				t	fast-transport-belt	10
				:-belt	express-transport	10
6.428571429					transport-belt	12
10				t	fast-transport-belt	12
10				-belt	express-transport	12

- [1] Rounded down to 2 decimal places
- [2] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.

Bold red text means the inserter is known to get stuck and not progress at all. I.e. the real minimum is zero, but this then shows the minimum for the cases when it doesn't get stuck.

- [3] Percent below the mean
- [4] The background is blue when the variance, i.e. the difference between min and max, is high.
- [5] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [6] Percent above the mean
- [7] Rounded down to 2 decimal places
- [8] Text is light grey where equal to the all directions, all belt phases measurements.
- [9] Text is light grey where equal to the all directions, all belt phases measurements.
- [10] Text is light grey where equal to the all directions measurements.

Since this only measures a single direction and belt phase, it shows the variance due to test grouping.

[11] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.

Bold red text means the inserter is known to get stuck and not progress at all. I.e. the real minimum is zero, but this then shows the minimum for the cases when it doesn't get stuck.

- [12] Percent below the mean
- [13] The background is blue when the variance, i.e. the difference between min and max, is high.
- [14] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [15] Percent above the mean
- [16] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.

- [17] Percent below the mean
- [18] The background is blue when the variance, i.e. the difference between min and max, is high.
- [19] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [20] Percent above the mean

[21] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.

- [22] Percent below the mean
- [23] The background is blue when the variance, i.e. the difference between min and max, is high.
- [24] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [25] Percent above the mean
- [26] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.
- [27] Percent below the mean
- [28] The background is blue when the variance, i.e. the difference between min and max, is high.
- [29] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [30] Percent above the mean
- [31] Sideloading early consistently faster than sideloading late.
- [32] Variance mostly due to different turn directions.
- [33] Variance mostly due to belt item phase.
- [34] Variance due to belt item phase.
- [35] UG exit significantly faster than UG entrance.
- [36] Variance due to belt item phase.
- [37] Inserters stuck most of the time when items are coming in from straight ahead.
- [38] Inserters stuck when items are coming in from straight ahead and leaving to the left.
- [39] Inserters stuck when items are coming in from straight ahead and leaving to the left.
- [40] Rounded down to 2 decimal places
- [41] Text is light grey where equal to the all directions measurements.
- [42] Text is light grey where equal to the all directions measurements.
- [43] Text is light grey where equal to the all directions measurements.
- [44] Text is light grey where equal to the all directions measurements.
- [45] The lanes filled with items. "Near" means the lane closest to the inserter, "far" the other one, and "both" for both lanes.

For sideloaded setups, "early" and "late" indicates where the sideloaded items enter the lane. "Early" means towards the back in the belt move direction, "late" towards the front.

E.g. if a belt is sideloaded on the right side in the move direction, "early" would mean the belt coming in from the right got the items in its left lane, and "late" that it got them in its right lane.

When both lanes are active, there is one "early" or "late" for each lane, listed as <left>/<right> where the sides refer to the lanes as seen in the belt move direction. "Back" means that lane is loaded normally from the back end.

Splitters have two input/output positions for each lane as well. They are listed similarly, where "close" means that the input/output closest to the inserter are in use, and "other" for the other input/output.

- [46] The direction in which the belt moves items, as seen from the inserter.
- [47] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.

Bold red text means the inserter is known to get stuck and not progress at all. I.e. the real minimum is zero, but this then shows the minimum for the cases when it doesn't get stuck.

- [48] Percent below the mean
- [49] The background is blue when the variance, i.e. the difference between min and max, is high.
- [50] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [51] Percent above the mean
- [52] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.

Bold red text means the inserter is known to get stuck and not progress at all. I.e. the real minimum is zero, but this then shows the minimum for the cases when it doesn't get stuck.

- [53] Percent below the mean
- [54] The background is blue when the variance, i.e. the difference between min and max, is high.
- [55] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [56] Percent above the mean
- [57] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.

- [58] Percent below the mean
- [59] The background is blue when the variance, i.e. the difference between min and max, is high.

- [60] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [61] Percent above the mean
- [62] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.

Bold red text means the inserter is known to get stuck and not progress at all. I.e. the real minimum is zero, but this then shows the minimum for the cases when it doesn't get stuck.

- [63] Percent below the mean
- [64] The background is blue when the variance, i.e. the difference between min and max, is high.
- [65] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [66] Percent above the mean
- [67] The background is red when a minority of the samples are slower than the rest, i.e. the mean is significantly closer to the maximum.

- [68] Percent below the mean
- [69] The background is blue when the variance, i.e. the difference between min and max, is high.
- [70] The background is green when a minority of the samples are faster than the rest, i.e. the mean is significantly closer to the minimum.
- [71] Percent above the mean
- [72] Inserters put items on the input side in all orientations except when the splitter is facing away. In that case they put items on the output side.
- [73] Inserters put items on the input side in all orientations except when the splitter is facing away. In that case they put items on the output side.
- [74] Inserters put items on the input side in all orientations except when the splitter is facing away. In that case they put items on the output side.
- [75] Inserters put items on the input side in all orientations except when the splitter is facing away. In that case they put items on the output side.
- [76] Since items are placed on the output side and won't go through the splitter in this case, it effectively behaves as a plain belt (which measurements confirm).
- [77] Inserters in all directions get stuck for a few belt item phases.
- [78] TODO: Before 0.17.44 these were excluded because they lowered the minimum throughput of the group a lot (it was 11.25), and they are uncommon. Now the throughput is even lower elsewhere, so they should be included.
- [79] Inserters always pick from the exit side, regardless of orientation.

- [80] Inserters always pick from the exit side, regardless of orientation.
- [81] Inserters always pick from the exit side, regardless of orientation.
- [82] Inserters always pick from the exit side, regardless of orientation.
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- [99] Inserters always pick from the exit side, regardless of orientation.
- [100] Inserters always pick from the exit side, regardless of orientation.
- [101] Inserters always pick from the exit side, regardless of orientation.
- [102] Inserters always pick from the exit side, regardless of orientation.
- [103] Inserters always pick from the exit side, regardless of orientation.
- [104] Inserters always pick from the exit side, regardless of orientation.
- [105] Inserters always pick from the exit side, regardless of orientation.
- [106] Inserters always pick from the exit side, regardless of orientation.
- [107] Inserters always pick from the exit side, regardless of orientation.
- [108] Inserters always pick from the exit side, regardless of orientation.

- [109] Inserters always pick from the exit side, regardless of orientation.
- [110] Inserters always pick from the exit side, regardless of orientation.
- [111] Inserters put items on the input side in all orientations except when the splitter is facing away. In that case they put items on the output side.

Hence items must be drained opposite the inserter when facing away, and assuming items pass through the splitter just as quickly when crossing sides as when not, it doesn't matter which side it is drained on in the other orientations.

- [112] Inserters always pick from the exit side, regardless of orientation.
- [113] Inserters always pick from the exit side, regardless of orientation.