

1. Forces on Guide Rail:

1.1 Forces on car guide rail

GQ [kg]	Rail force in traveling section*		Rail force in shaft pit and head section**	
	FF1car [N]	FF2car [N]	FF1car [N]	FF2car [N]
400	373	205	653	359
535	524	324	917	567
625	699	379	1'224	663
675	755	441	1'322	771
800	1'018	518	1'782	907
1'000	1'458	648	2'551	1'134
1'125	1'249	1'093	2'186	1'913

* FF1 and FF2 values based on load case car safety braking_phase I (CSB_I; n=2)

** FF1 and FF2 values based on load case car buffer impact_phase I (CBI_I; n=3.5)

1.2 Forces on counterweight guide rail

1.2.1 Forces without safety gear on counterweight

GQ [kg]	Rail force in traveling section*		Rail force in shaft pit and head section**	
	FF1cw [N]	FF2cw [N]	FF1cw [N]	FF2cw [N]
400	100	31	160	50
535	120	37	192	60
625	129	40	207	64
675	134	42	215	67
800	215	49	344	78
1'000	245	56	393	89
1'125	350	65	559	104

* FF1 and FF2 values based on load case car safety braking_phase II (CSB_II; n=2.5)

** FF1 and FF2 values based on load case car buffer impact_phase II (CBI_II; n=4)

1.2.1 Forces with safety gear on counterweight

GQ [kg]	Rail force in traveling section*		Rail force in shaft pit and head section**	
	FF1cw [N]	FF2cw [N]	FF1cw [N]	FF2cw [N]
400	240	75	160	50
535	287	90	192	60
625	310	97	207	64
675	323	101	215	67
800	516	117	344	78
1'000	589	134	393	89
1'125	839	155	559	104

* FF1 and FF2 values based on load case cw safety braking_phase II (WSB_II; n=6)

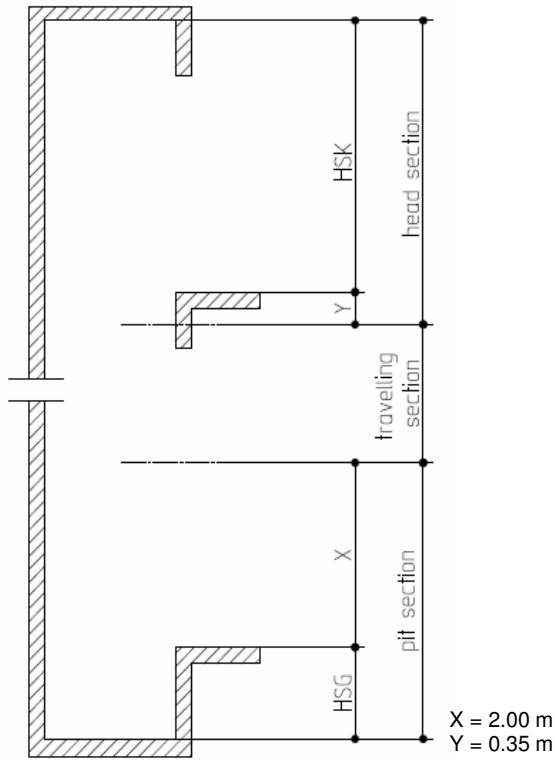
** FF1 and FF2 values based on load case car buffer impact_phase II (CBI_II; n=4)

Modification	Ae 0	Ae 1	Ae 2	Ae 3	Ae 4	Ae 5	Ae 6		Prepared	25-07-07	weingafr
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Forces on Shaft								Remark			
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										2	A4
INVENTIO AG CH-6052 Hergiswil				Classification	Lead Office	J 635579			Page	Lang.	
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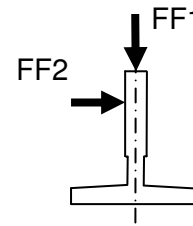
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Shaft section definition:

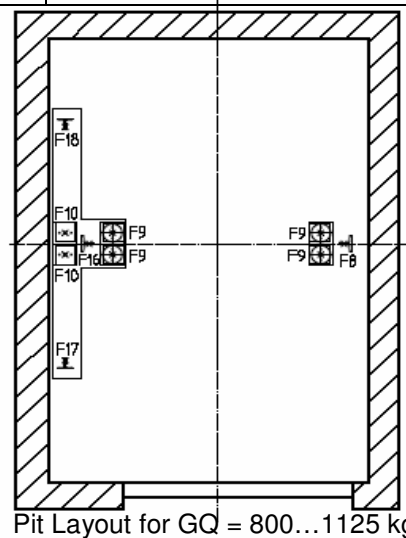
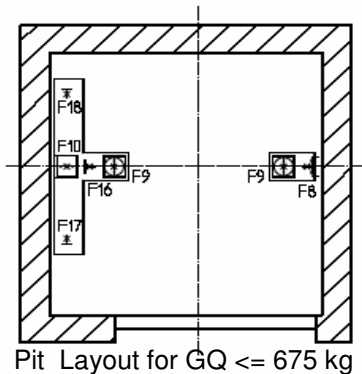


Guide shoe forces:



2. Forces on Shaft Pit:

Force Nr.	Dynamic forces on hoistway pit [kN]	GQ [kg]						
		400	535	625	675	800	1000	1125
F8	Force of car guide rail GB side	15.3	17.4	18.5	19.1	22.4	25.0	27.7
F9	Force of car buffer	18.4	22.7	24.9	26.2	15.3	17.9	20.6
F10	Force of cwt buffer	29.0	34.8	37.6	39.1	21.2	24.0	30.2
F16	Force of car guide rail drive side	28.3	32.9	36.7	37.9	42.8	47.5	57.8
F17, F18	Force of cwt guide rail drive side w/o safety	8.0	9.2	10.2	10.5	13.0	13.8	17.0
F17, F18	Force of cwt guide rail drive side with safety	22.9	27.1	30.8	30.7	36.3	40.9	50.3
Number of buffers								
counterweight side		1			2			
car side		2			4			



Comments:

- Forces of guide rails (F8, F16-18) and forces of buffers (F9, F10) do not act simultaneously. Therefore for structural analysis the figures must not be added up.
- Force calculations are based on: ST890.2002.163/B01 (Load Document) & ST890.2002.163/B10 (Stress Report)

Forces on Shaft S3300-EU; S5300-EU	KA No.	KA Date	Ae	J 635579	Page	Format	Lang.
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