

Trougher Engineering Guidelines

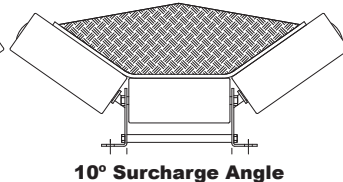
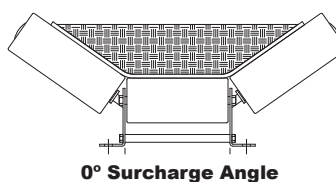
Many variables affect actual conveyor delivery - your application will require specific engineering that we do not provide. The following information is for comparative purposes only and is only provided for 50 pounds per cubic foot material density. Find the cross sectional area (Sq. Ft.) for 0 and 10 degree surcharge of various standard Troughers on charts on left. See the theoretical conveyor delivery (Tons per hour) and frame spacing (Max. center distance inches) on charts on right for various cross sectional areas (sq. ft.) and Belt speeds (FPM) at 50 pounds per cubic foot density. See illustration and examples below to better understand the data provided.

Belt Size	Cross Section Area (sq. ft.)			
	2R-15		*2R*-20	
	0 Sur	10 Sur	0 Sur	10 Sur
8	0.021	0.036	0.027	0.042
10	0.035	0.059	0.045	0.069
12	0.053	0.088	0.068	0.103
14	0.073	0.124	0.094	0.144
16	0.098	0.164	0.126	0.192
18	0.125	0.211	0.161	0.247
20	0.157	0.264	0.201	0.309
24	0.230	0.387	0.295	0.452
30	0.365	0.615	0.469	0.719

Belt Size	Cross Section Area (sq. ft.)			
	2R-25		*2R*-30	
	0 Sur	10 Sur	0 Sur	10 Sur
8	0.033	0.047	0.037	0.051
10	0.054	0.078	0.061	0.085
12	0.080	0.116	0.091	0.127
14	0.112	0.163	0.127	0.177
16	0.150	0.216	0.169	0.236
18	0.192	0.278	0.217	0.303
20	0.240	0.347	0.271	0.379
24	0.352	0.509	0.398	0.555
30	0.559	0.809	0.632	0.882

Belt Size	Cross Section Area (sq. ft.)			
	*3RS-20		*3RS-35	
	0 Sur	10 Sur	0 Sur	10 Sur
12	0.053	0.088	0.085	0.116
14	0.066	0.115	0.107	0.151
16	0.079	0.145	0.129	0.189
18	0.092	0.177	0.151	0.229
20	0.105	0.212	0.173	0.272
22	0.118	0.249	0.194	0.317
24	0.131	0.288	0.216	0.365
26	0.144	0.331	0.238	0.415
30	0.170	0.422	0.282	0.522
36	0.210	0.577	0.348	0.702
42	0.249	0.755	0.414	0.903
48	0.288	0.955	0.479	1.127

Belt Size	Cross Section Area (sq. ft.)			
	*3RL-20		*3RL-35	
	0 Sur	10 Sur	0 Sur	10 Sur
12	NA	NA	NA	NA
14	NA	NA	NA	NA
16	NA	NA	NA	NA
18	0.143	0.225	0.227	0.297
20	0.169	0.272	0.269	0.359
22	0.194	0.321	0.312	0.423
24	0.219	0.372	0.354	0.490
26	0.244	0.426	0.396	0.559
30	0.295	0.541	0.481	0.705
36	0.370	0.732	0.608	0.943
42	0.446	0.945	0.735	1.202
48	0.522	1.180	0.861	1.484



Installation Notes:

a) Spacing of units will be dictated by troughability of belt as well as by load capacity of troughing unit. Where *** is indicated, spacing should be limited to maintain troughability of belt. Inches shown indicate the maximum center distance (at 50 lbs./Cu. Ft. materials) so as not to exceed 100 pounds per 2 roll units and 150 pounds for 3 roll units. In general, spacing should not exceed 36 to 48 inches for troughability or inches indicated for unit load capacity. Consult your engineering for specifics.

b) Roller diameter as well as belt speed and load per unit affect bearing life. For ball bearings, limit 1.9dia. roll units to 150 FPM, 2.88dia. roll units to 300FPM. For bushing style bearings, limit 1.9dia. roll units to 50 FPM, 2.88dia. roll units to 100 FPM.

c) Pulley top elevation to bottom of belt trough affects belt stress and bearing loads in rollers. Typically; For *2R*-30, Locate the top of the pulley above the trough V by 1/2" for a 12" belt to 1 1/2" for a 30" belt width. For *3RS-20, Locate the top of the pulley level with the top of the center roll. For *3RL-35, Locate the top of the pulley 1/2" above the top of the center roll.

d) Spacing for first unit from pulley affects belt stress and bearing loads in rollers. Typically; For *2R*, use *2R*-15 as transition unit - offset the distance from the pulley by one belt width. For *3RS, offset the distance from the pulley by one belt width. For *3RL, offset the distance from the pulley by 1.5 x belt width.

Examples: On the left, *2R*-30 @ 0 sur x 24" belt = .398 Sq. Ft.

On the right under "cross section area", Between 0.38 and 0.41 Sq. Ft. @ 150 FPM = approx. 90 TPH and Maximum spacing of approximately 60 inches, but should be reduced for troughability.

On the left, 3RL-35 @ 10 sur x36" belt = 0.943 Sq. Ft.

On the right under "cross section area", Close to 0.95 Sq. Ft. @ 200 FPM = approx. 285 TPH and Max. spacing of 38 inches, based on unit load limit.

Cross Section Area	b) Delivery = Tons per hour at 50 lbs. / cu. ft.						a) Max Spacing (in.) at 50 lbs. / cu. Ft.	
	Belt Speed (ft. per min. FPM)						*2R*	*3R*
	50	100	150	200	250	300		
0.02	1.5	3.0	4.5	6.0	7.5	9.0	***	***
0.03	2.3	4.5	6.8	9.0	11.3	13.5	***	***
0.04	3.0	6.0	9.0	12.0	15.0	18.0	***	***
0.05	3.8	7.5	11.3	15.0	18.8	22.5	***	***
0.06	4.5	9.0	13.5	18.0	22.5	27.0	***	***
0.07	5.3	10.5	15.8	21.0	26.3	31.5	***	***
0.08	6.0	12.0	18.0	24.0	30.0	36.0	***	***
0.09	6.8	13.5	20.3	27.0	33.8	40.5	***	***
0.10	7.5	15.0	22.5	30.0	37.5	45.0	***	***
0.12	9.0	18.0	27.0	36.0	45.0	54.0	***	***
0.14	10.5	21.0	31.5	42.0	52.5	63.0	***	***
0.16	12.0	24.0	36.0	48.0	60.0	72.0	***	***
0.18	13.5	27.0	40.5	54.0	67.5	81.0	***	***
0.20	15.0	30.0	45.0	60.0	75.0	90.0	***	***
0.23	17.3	34.5	51.8	69.0	86.3	103.5	***	***
0.26	19.5	39.0	58.5	78.0	97.5	117.0	***	***
0.29	21.8	43.5	65.3	87.0	108.8	130.5	***	***
0.32	24.0	48.0	72.0	96.0	120.0	144.0	75	***
0.35	26.3	52.5	78.8	105.0	131.3	157.5	69	***
0.38	28.5	57.0	85.5	114.0	142.5	171.0	63	***
0.41	30.8	61.5	92.3	123.0	153.8	184.5	59	***
0.44	33.0	66.0	99.0	132.0	165.0	198.0	55	***
0.47	35.3	70.5	105.8	141.0	176.3	211.5	51	***
0.50	37.5	75.0	112.5	150.0	187.5	225.0	48	72
0.55	41.3	82.5	123.8	165.0	206.3	247.5	44	65
0.60	45.0	90.0	135.0	180.0	225.0	270.0	40	60
0.65	48.8	97.5	146.3	195.0	243.8	292.5	37	55
0.70	52.5	105.0	157.5	210.0	262.5	315.0	34	51
0.75	56.3	112.5	168.8	225.0	281.3	337.5	32	48
0.80	60.0	120.0	180.0	240.0	300.0	360.0	30	45
0.85	63.8	127.5	191.3	255.0	318.8	382.5	28	42
0.90	67.5	135.0	202.5	270.0	337.5	405.0	27	40
0.95	71.3	142.5	213.8	285.0	356.3	427.5	25	38
1.00	75.0	150.0	225.0	300.0	375.0	450.0	24	36
1.10	82.5	165.0	247.5	330.0	412.5	495.0	22	33
1.20	90.0	180.0	270.0	360.0	450.0	540.0	20	30
1.30	97.5	195.0	292.5	390.0	487.5	585.0	18	28
1.40	105.0	210.0	315.0	420.0	525.0	630.0	17	26
1.50	112.5	225.0	337.5	450.0	562.5	675.0	16	24