



**STOP TUBE RECOMMENDATIONS FOR AIR AND HYDRAULIC CYLINDERS**

A Stop Tube is a construction feature recommended for use in certain single rod end cylinders when the calculated Value of "L" exceeds a minimum level.

Its function is to increase the distance between the piston and rod bearing support surfaces when the stroke is fully extended. This added distance improves the structural rigidity of the assembly, increases rod buckling resistance, and reduces the possibility of bearing surface overloads.

Stop Tube design information is explained in greater detail on the following page. This data should be reviewed to gain information on construction variations and order options applicable when the use of a Stop Tube is indicated.

Stop Tube use recommendations can be determined by following the same procedure explained on the preceding page pertaining to the selection of the Piston Rod Diameter.

Steps 1 and 2 relate to Stop Tube requirements. The calculated Value of "L" should be located in the charted information below to find the suggested Stop Tube length. If the use of a Stop Tube is indicated, the original Value of "L" should be adjusted to include this additional length and rechecked to determine any possible effects on the selected rod diameter or Stop Tube requirements.

Cylinders with Fixed, Rigid Mounting Styles (groups headed by Models "A" and "C" in chart on preceding page) used with Class II and III Rod End Connections usually do not require the use of Stop Tubes. However, if the cylinder stroke is very long, or other conditions exist which may be improved by use of a Stop Tube, its inclusion may be warranted in view of those conditions as a matter of customer preference.

VALUE OF "L" AS DETERMINED BY MOUNTING STYLE AND STROKE LENGTH																	
0 TO 40	41 TO 50	51 TO 60	61 TO 70	71 TO 80	81 TO 90	91 TO 100	101 TO 110	111 TO 120	121 TO 130	131 TO 140	141 TO 150	151 TO 160	161 TO 170	171 TO 180	181 TO 190	191 TO 200	For Values of "L" greater than 200, the recommended Stop Tube length may be calculated by using the formula: STOP TUBE LENGTH = (L - 40) ÷ 10 Round off answer to next even inch.
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
RECOMMENDED STOP TUBE LENGTH (INCHES)																	

**SELECTION OF PISTON ROD DIAMETER BASED ON VALUE OF "L".**

CYLINDER THRUST	PISTON ROD DIAMETER															
	5/8	1	1 3/8	1 3/4	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	7	8	9	
150	58	104														
250	45	93	145													
400	35	84	135	186												
700	31	67	118	168	202	276										
1000	26	60	106	152	191	258	330									
1200	24	57	100	148	182	250	316									
1400	22	54	92	142	174	244	308	384								
1800	19	48	83	128	160	230	295	366	440							
2400	17	45	74	114	145	213	282	346	416	488						
3200	15	42	68	104	131	195	261	330	400	462						
4000	13	38	63	93	119	174	240	310	378	446						
5000	8	35	60	88	111	164	225	290	359	426	494					
6000	7	30	56	81	102	152	209	274	342	410	476					
8000		26	51	76	94	137	187	245	310	375	446					
10,000		21	45	69	88	125	172	222	280	348	412	480				
12,000		17	41	65	85	118	155	210	269	326	388	454				
16,000		9	33	57	75	110	142	188	235	291	350	420				
20,000			28	52	68	104	136	173	218	270	326	385				
30,000			12	39	55	87	120	156	190	230	284	326				
40,000			11	23	44	75	108	142	177	210	246	294				
50,000			9	15	30	66	97	130	166	200	234	268	410			
60,000				14	18	57	88	120	154	190	225	256	380			
80,000				12	16	36	71	104	137	170	204	240	330			
100,000					14	22	56	91	120	154	190	222	320	400		
120,000					12	21	44	76	109	144	174	206	310	370		
140,000						19	27	64	98	124	160	194	300	360		
160,000						17	26	47	86	118	148	182	280	350	420	
200,000						14	23	31	66	98	126	160	260	330	400	
250,000							19	28	36	72	108	140	230	300	370	
300,000								25	32	40	90	120	210	280	350	
350,000									28	38	50	100	190	260	320	
400,000										34	42	70	180	240	300	
500,000										30	38	46	150	210	270	