

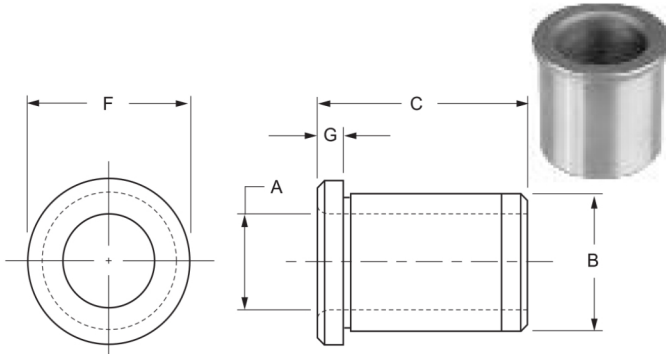
HEAD LINER - TYPE HL

When ordering specify:

Example:

Quantity	Bushing Type	I.D.(A)	O.D.(B)	Length(C)
6	HL	5/16	1/2	3/4

Or: 6 HL-32-12



ANSI HEAD LINER HEAD DIMENSIONS

BODY O.D. B	HEAD DIMENSION	
	F	G
1/2	5/8	3/32
3/4	7/8	3/32
1	1-1/8	1/8
1-3/8	1-1/2	1/8
1-3/4	1-7/8	3/16
2-1/4	2-3/8	3/16
2-3/4	2-7/8	3/16

A I.D. RANGE Drill Size Decimal Range	B O.D. TOLERANCE Nominal GROUND UNGROUND DIGITAL RANGE		C	ANSI SYMBOL ‡	PRICE CODE
	5/16 (.3126 - .3129)	1/2 .5017 .518 .5014 .513			
1/2 (.5002 - .5005)	3/4 .7518 .768 .7515 .763		5/16 HL-48-5 115 3/8 HL-48-6 117 1/2 HL-48-8 117 3/4 HL-48-12 121 1 HL-48-16 128 1-3/8 HL-48-22 136 1-1/2 HL-48-24 141 1-3/4 HL-48-28 147 2-1/8 HL-48-34 156		
3/4 (.7503 - .7506)	1 1.0018 1.018 1.0015 1.013		1/2 HL-64-8 126 3/4 HL-64-12 130 1 HL-64-16 133 1-3/8 HL-64-22 136 1-1/2 HL-64-24 143 1-3/4 HL-64-28 151 2-1/8 HL-64-34 161 2-1/2 HL-64-40 177 3 HL-64-48 228		
1 (1.0004 - 1.0007)	1-3/8 1.3772 1.395 1.3768 1.390		1/2 HL-88-8 144 3/4 HL-88-12 136 1 HL-88-16 144 1-3/8 HL-88-22 150 1-1/2 HL-88-24 153 1-3/4 HL-88-28 161 2-1/8 HL-88-34 171 2-1/2 HL-88-40 185 3 HL-88-48 246		

A I.D. RANGE Drill Size Decimal Range	B O.D. TOLERANCE Nominal GROUND UNGROUND DIGITAL RANGE		C	ANSI SYMBOL ‡	PRICE CODE
	1-3/8 (1.3756 - 1.3760)	1-3/4 1.7523 1.770 1.7519 1.765			
1-3/4 (1.7508 - 1.7512)	2-1/4 2.2525 2.270 2.2521 2.265		3/4 HL-144-12 191 1 HL-144-16 184 1-3/8 HL-144-22 192 1-1/2 HL-144-24 198 1-3/4 HL-144-28 205 2-1/8 HL-144-34 218 2-1/2 HL-144-40 231 3 HL-144-48 264		
2-1/4 (2.2510 - 2.2515)	2-3/4 2.7526 2.770 2.7522 2.765		3/4 HL-176-12 216 1 HL-176-16 203 1-3/8 HL-176-22 218 1-1/2 HL-176-24 222 1-3/4 HL-176-28 229 2-1/8 HL-176-34 241 2-1/2 HL-176-40 249 3 HL-176-48 270		

NOTE: Length is measured overall.

‡ All bushings are finish ground unless the letter "U" appears with the bushing type or the ANSI symbol.

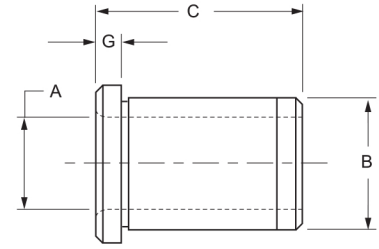
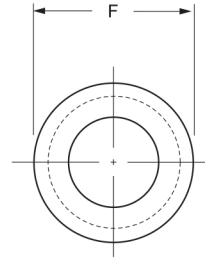
EXTENDED RANGE HEAD LINER - TYPE HL

When ordering specify:

Example:

Quantity	Bushing Type	I.D.(A)	O.D.(B)	Length(C)
6	HL	2-3/4	3-3/8	2-3/4

Or: 6 HL-216-44



I.D. RANGE (A)	NOM.	2"	2-1/2	2-3/4	3"	3-1/4	3-3/8	3-1/2	3-3/4	4"	4-1/4	4-3/8	4-1/2	4-3/4	5"
	DEC. RANGE	2.0010 2.0015	2.5010 2.5015	2.7510 2.7515	3.0010 3.0015	3.2510 3.2515	3.3760 3.3765	3.5010 3.5015	3.7510 3.7515	4.0010 4.0015	4.2510 4.2515	4.3760 4.3765	4.5010 4.5015	4.7510 4.7515	5.0010 5.0015
O.D. RANGE (B)‡	NOM.	2-1/2	3"	3-3/8	3-5/8	3-7/8	4"	4-1/8	4-1/2	4-3/4	5"	5-1/8	5-1/4	5-1/2	5-3/4
	DEC. RANGE	2.5025 2.5021	3.0028 3.0023	3.3778 3.3773	3.6278 3.6273	3.8778 3.8773	4.0028 4.0023	4.1280 4.1275	4.5030 4.5025	4.7530 4.7525	5.0030 5.0025	5.1280 5.1275	5.2530 5.2525	5.5030 5.5025	5.7530 5.7525
LENGTH (C)	ANSI CODE	160	192	216	232	248	256	264	288	304	320	328	336	352	368
3/4	12	303	343	360	366	370	372	*	*	*	*	*	*	*	*
1	16	304	344	363	370	374	376	*	*	*	*	*	*	*	*
1-1/4	20	306	348	365	373	378	381	*	*	*	*	*	*	*	*
1-1/2	24	310	350	367	378	382	387	*	*	*	*	*	*	*	*
1-3/4	28	313	352	370	381	387	392	*	*	*	*	*	*	*	*
2	32	316	357	373	386	392	399	*	*	*	*	*	*	*	*
2-1/8	34	318	359	376	-	-	-	-	-	-	-	-	-	-	-
2-1/4	36	323	362	380	390	398	405	*	*	*	*	*	*	*	*
2-1/2	40	326	366	382	396	404	412	*	*	*	*	*	*	*	*
2-3/4	44	334	370	387	400	410	419	*	*	*	*	*	*	*	*
3	48	338	374	390	406	416	425	*	*	*	*	*	*	*	*
3-1/4	52	360	378	395	412	422	433	*	*	*	*	*	*	*	*
3-1/2	56	363	380	398	418	430	442	*	*	*	*	*	*	*	*
3-3/4	60	366	384	402	424	438	451	*	*	*	*	*	*	*	*
4	64	370	387	406	431	444	457	*	*	*	*	*	*	*	*
4-1/4	68	373	391	410	439	451	462	*	*	*	*	*	*	*	*
4-1/2	72	377	396	414	448	458	468	*	*	*	*	*	*	*	*
4-3/4	76	380	400	419	456	465	474	*	*	*	*	*	*	*	*
5	80	382	407	424	462	472	480	*	*	*	*	*	*	*	*
5-1/2	88	-	-	-	-	-	492	*	*	*	*	*	*	*	*
6	96	-	-	-	-	-	-	*	*	*	*	*	*	*	*
6-1/2	104	-	-	-	-	-	-	-	*	*	*	*	*	*	*
7	112	-	-	-	-	-	-	-	-	-	-	*	*	*	*
HEAD F		2-5/8	3-1/8	3-1/2	3-7/8	4-1/8	4-1/4	4-3/8	4-3/4	5	5-1/4	5-3/8	5-1/2	5-3/4	6
HEAD G		3/16	3/16	3/16	3/16	3/16	3/16	3/16	7/32	7/32	7/32	7/32	7/32	7/32	7/32

Unground O.D.'s are .015 / .020 oversized

NOTE: All bushings are finish ground unless the letter "U" appears with the bushing type or ANSI symbol.

*- Priced upon request

All extended range bushings are considered special orders and are non-returnable.

NOTE: Length is measured overall.

BUSHINGS