



## Installation Procedure

- 1)** Measure the sleeve O.D., Top-middle-bottom, rotate the sleeve 90 degrees, and measure again top-middle-bottom. The average measurement is the size of the sleeve. This measurement is what is used to calculate press or interference fit. Some minor sleeve distortion may have occurred during shipment, however the sleeve will conform to the cylinder shape.
- 2)** Determine the amount of press needed for the application (see page III for press recommendations). Stop the boring tool 1/8" to 1/2" (depending on the type of block, piston travel, oil ring location, length of crack, etc.) from the bottom of the cylinder to leave a step (ledge) for the sleeve to sit on. The cylinder head will hold the sleeve from the top. When the block has been bored out to size to accept the sleeve, change the boring machine cutter to a pointed tool. In order to square the step/ledge, set the tool about .010" (PER SIDE) less than the block has been bored to. Lightly cut away some of the chamfer until the cutter reaches the flat, or the top of the step/ledge. This allows the sleeve to sit fully on the step/ledge, not partially on the chamfered edges.
- 3)** Apply a sleeve retainer compound of your choice (optional if not repairing a cracked block) to the outside diameter of the sleeve, then either press or carefully drive the sleeve into the block. Make sure the sleeve is all the way down and bottomed on the step/ledge. Trim the excess sleeve material from the top of the block (with the bottom flat of the boring tool if there is substantial material) Bore the sleeve to required inside diameter size. With a long sharp file, remove any sleeve protrusion that would cause head gasket problems, or deck the block with a mill. Finally chamfer the top inside diameter of the sleeve.

## Press Fit Recommendations

**2.00" BORE UP TO 5-1/8" = .003" PRESS MAXIMUM**  
**5-1/8" BORE UP TO 6-1/2" = .004" PRESS MAXIMUM**  
**6-1/2" BORE UP TO 8-1/2" = .005" PRESS MAXIMUM**

The above figures are for perfect to normal conditions, not for use in all applications. Please keep in mind that the machinist's past experiences should also be considered. There are numerous factors that will effect the amount of press that should be used.

Some of these include ***BUT ARE NOT LIMITED TO:***

- The location of the damage, crack or hole.
- A long crack or large chunk missing will reduce press because the damage will open under stress. Increase or decrease the amount of press according to what will seal the damage. Pressure testing recommended.
- The material and Strength Integrity of the block (an air-cooled aluminum jug vs. A high nickel block and a lightweight design vs. A rigid type block casting).
- If the remaining cylinders are going to be bored or not. (Remember, the more press - the greater the distortion to the surrounding cylinders. This distortion may not become round with just finish honing).
- Not using a step at the bottom of the cylinder means more press should be used to help keep the sleeve from dropping.

**Take these factors into consideration and adjust the amount of press for each sleeve installation accordingly!**



**Performance Cylinder Sleeves**

Melling “HP” sleeves are made from centrifugally cast, high strength gray iron. It is a lower carbon iron alloyed with chromium, copper, and nickel to produce a harder (241-293 BHN) more wear resistant surface. The average tensile strength (45,000 - 50,000 p.s.i.) is 1/3 greater than “regular” iron sleeves and nearly all O.E.M. cylinder blocks. This translates into. This proven sleeve material has been used successfully for years in heavy-duty diesel and performance engines to give longer life with less distortion and enhanced reliability. Our “HP” iron is compatible with all ring materials.

**Performance Cylinder Sleeve Specifications**

NOMINAL BORE	LENGTH	SEMI-FINISHED INSIDE DIA.	3/32” WALL		1/8” WALL	
			O.D.	NUMBER	O.D.	NUMBER
4.000	6.250	3.970	4.1905	CSL136HP	4.253	CSL236HP
4.125	6.250	4.095	4.3155	CSL161HP	4.378	CSL261HP
4.250	7.000	4.220	4.4405	CSL197HP	4.503	CSL297HP



**NEW!**



## Performance Cylinder Sleeves

- Universal flanged sleeves to provide extra insurance to prevent sleeve movement in performance applications.
- Reduce the critical factors that secure standard liners such as press fit, cylinder ledge at bottom of bore, and heat expansion rates of metals.
- Flanged counter bore thickness in block can be machined .002 less to provide extra sealing against the gasket and head from the flange on the sleeve.
- Bore can be up to .060 bigger than standard and still have a 3/32" wall
- Heavy duty 619 material.

PART NUMBER	STANDARD BORE	SEMI-I.D.	FLANGE O.D.	FLANGE THICKNESS	SLEEVE O.D.	LENGTH THICKNESS
590203	3.9375	3.907	4.330	.125	4.190	6 <sup>3</sup> / <sub>4</sub> "
590295	4.00	3.970	4.330	.125	4.253	5 <sup>1</sup> / <sub>2</sub> "
590298	4.00	3.970	4.393	.125	4.253	5 <sup>7</sup> / <sub>8</sub> "
590236	4.00	3.970	4.393	.125	4.253	6 <sup>1</sup> / <sub>4</sub> "
590280	4.00	3.970	4.393	.125	4.253	6 <sup>1</sup> / <sub>2</sub> "
590231	4.050	4.020	4.443	.125	4.303	6 <sup>1</sup> / <sub>4</sub> "
590295	4.050	4.020	4.443	.125	4.303	6 <sup>5</sup> / <sub>16</sub> "
592274	4.110	4.080	4.503	.125	4.363	6 <sup>7</sup> / <sub>8</sub> "
592256	4.125	4.095	4.518	.125	4.378	7 <sup>1</sup> / <sub>2</sub> "
590261	4.125	4.095	4.518	.125	4.378	6 <sup>1</sup> / <sub>4</sub> "
590297	4.250	4.220	4.643	.125	4.503	7"

# UNIVERSAL PROGRESSIVE SIZE CHART



CYLINDER BORE INCHES	LENGTH	3/32" WALL	1/8" WALL
		PART NO.	PART NO.
2.000	6-1/2	CSL450	CSL550
2.0625	6-1/2	CSL451	CSL551
2.1250	6-1/2	CSL452	CSL552
2.1875	6-1/2	CSL453	CSL553
2.2500	6-1/2	CSL454	CSL554
2.3125	6-1/2	CSL455	CSL555
2.3750	6-1/2	CSL456	CSL556
2.3750	7	CSL446	
2.4375	6-1/2	CSL457	CSL557
2.5000	6-1/2	CSL458	CSL558
2.5000	7	CSL447	
2.5420	5-3/16	CSL633	
2.5675	6-1/2	CSL459	CSL559
2.5675	7	CSL448	
2.6250	6-1/2	CSL460	CSL560
2.6250	7	CSL449	
2.6250	8-1/4	CSL488	CSL588
2.6770	5-3/4	CSL622	CSL722
2.6875	8-1/4	CSL461	CSL561
2.7280	5-5/16	CSL634	
2.7500	7-1/2	CSL401	CSL501
2.7500	8-1/4	CSL485	CSL585
2.7950	5-1/4	CSL628	CSL728
2.8125	8-1/4	CSL462	CSL562
2.8350	6-1/2	CSL604A	CSL704A
2.8740	4-7/8	CSL601	CSL701
2.8740	5-1/4	CSL607	CSL707
2.8740	6-1/16	CSL620	CSL720
2.8750	8-1/4	CSL402	CSL502
2.9130	6-1/2	CSL605A	CSL705A
2.9375	8-1/4	CSL463	CSL563
2.9530	4-7/8	CSL606	CSL706
2.9530	6-3/8	CSL616	CSL716
2.9720	5-1/8	CSL629	CSL729
2.9920	5-1/4	CSL610	CSL710
2.9920	7	CSL621	CSL721
2.9920	7		CSL760 (2mm wall)
3.0000	6	CSL1168	CSL2268
3.0000	6-3/8	CSL150	CSL250
3.0000	7-1/2	CSL154N	CSL254N
3.0000	8-1/4	CSL403	CSL503
3.0000	9-1/4	CSL486	CSL586
3.0300	5-3/4	CSL1116	CSL2216
3.0510	5-1/8	CSL631	CSL731
3.0625	8-1/4	CSL404	CSL504
3.0710	5-5/8	CSL618	CSL718

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HP Denotes higher grade material used

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F suffix denotes flanged sleeve

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CYLINDER BORE INCHES	LENGTH	3/32" WALL	1/8" WALL
		PART NO.	PART NO.
3.0710	6-3/8	CSL1108N	CSL2208N
3.0730	9-1/4	CSL433	
3.1250	6	CSL1169	CSL2269
3.1250	6-7/8	CSL170	CSL270
3.1250	8-1/8	CSL135	CSL235
3.1250	9	CSL405	CSL505
3.1300	5-3/4	CSL1134	CSL2234
3.1500	5-3/16	CSL1131	CSL2231
3.1500	6	CSL1132	CSL2232
3.1500	6-1/4	CSL609	CSL709
3.1500	7		CSL800 (2mm wall)
3.1610	6	CSL619	CSL719
3.1875	6	CSL151	CSL251
3.1875	6-1/2	CSL105	CSL205
3.1875	6-1/2		CSL105F (Flanged .095 wall)
3.1875	6-1/2		CSL301F (Flanged .040 wall)
3.1875	6-1/2		CSL304F (Flanged .090 wall)
3.1875	7-1/2	CSL153	CSL253
3.1875	7-1/2	CSL153N	CSL253N
3.1875	9-1/4	CSL406A	CSL506A#
3.1890	5-1/2	CSL623	CSL723
3.1890	5-7/8	CSL1118N	CSL2218N
3.1890	7		CSL810 (2mm wall)
3.2280	5-3/8	CSL1105	CSL2205
3.2283	7		CSL820 (2mm wall)
3.2500	7-1/4	CSL1142	CSL2242
3.2500	7-1/2	CSL1143	CSL2243
3.2500	8-1/16	CSL115N	CSL215N
3.2500	9-1/4	CSL407	CSL507
3.2680	5-1/2	CSL613	CSL713
3.2680	5-3/4	CSL624	CSL724
3.2680	6-1/4	CSL611	CSL711
3.2680	7	CSL803	CSL903
3.2680	7		CSL830 (2mm wall)
3.3000	8-3/16	CSL112	CSL212
3.3030	7		CSL840 (2mm wall)
3.3070	5-5/8	CSL1107	CSL2207
3.3070	6-1/2	CSL1128	CSL2228
3.3125	7-9/16	CSL107	CSL207
3.3125	9-1/4	CSL408	CSL508
3.3300	5-11/16	CSL1136	CSL2236
3.3440	7-9/16	CSL1144	CSL2244
3.3460	5-1/4	CSL602	CSL702
3.3460	6	CSL612	CSL712
3.3460	6-1/4	CSL617	CSL717
3.3464	7		CSL850 (2mm wall)

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CYLINDER BORE INCHES	LENGTH	3/32" WALL	1/8" WALL
		PART NO.	PART NO.
3.3750	6	CSL1145	CSL2245
3.3750	7-5/16	CSL125	CSL225
3.3750	9-1/4	CSL409	CSL509
3.3860	5-3/4	CSL615	CSL715
3.3860	7	CSL804	CSL904
3.3860	7		CSL860 (2mm wall)
3.4000	5-15/16	CSL156	CSL256
3.4000	7-1/16	CSL155	CSL255
3.4120	6-15/16		CSL311F (Flanged .134 wall)
3.4250	5-1/2	CSL1138	CSL2238
3.4250	7		CSL870 (2mm wall)
3.4330	5-13/16	CSL603	CSL703
3.4375	5-13/16	CSL1146	CSL2246
3.4375	6-15/16		CSL307F (Flanged 7/64 wall)
3.4375	7-1/2	CSL152	CSL252
3.4375	7-1/2	CSL152N	CSL252N
3.4375	8-1/8	CSL119N†	CSL219N
3.4375	9-1/4	CSL410	CSL510
3.4440	6	CSL1129	CSL2229
3.4440	6-7/16	CSL1171	CSL2271
3.4646	7		CSL880 (2mm wall)
3.4650	5-45/64		CSL327F (Flanged 1/8 wall)
3.4650	5-7/8	CSL614	CSL714
3.4840	6-1/4	CSL608	CSL708
3.5000	5-1/8	CSL104	CSL204
3.5000	5-1/4	CSL1112	CSL2212
3.5000	5-1/2	CSL1137†	CSL2237
3.5000	5-9/16	CSL1141	CSL2241
3.5000	5-3/4	CSL1122	CSL2222
3.5000	5-3/4		CSL307FXV (Flanged 5/64 wall)
3.5000	5-7/8	CSL1120	CSL2220
3.5000	5-15/16	CSL141	CSL241
3.5000	6	CSL1111	CSL2211
3.5000	7-1/16	CSL109	CSL209
3.5000	8-1/16	CSL108	CSL208
3.5000	9-1/4	CSL411	CSL511#
3.5040	7		CSL890 (2mm wall)
3.5180	5-1/2	CSL1147	CSL2247
3.5512	5-1/4		CSL1177X (1/16" wall)
3.5512	6-1/4		CSL1178X (1/16" wall)
3.5675	5-15/16	CSL158	CSL258
3.5675	6-7/8	CSL102	CSL202
3.5675	7-7/32	CSL111	CSL211
3.5675	7-9/16	CSL123	CSL223
3.5675	10	CSL412	CSL512
3.5750	5-5/8	CSL190A	CSL290A

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CYLINDER BORE INCHES	LENGTH	3/32" WALL	1/8" WALL
		PART NO.	PART NO.
3.5830	5-1/2	CSL625	
3.5860	5	CSL1172	CSL2272
3.5860	6-1/2	CSL1130	CSL2230
3.6220	5-25/64		CSL328F (Flanged 1/8" wall)
3.6220	6-1/16	CSL630	CSL730
3.6250	6	CSL144	CSL244
3.6250	6-11/16	CSL142	CSL242
3.6250	7	CSL134	CSL234
3.6250	10-1/4	CSL413A	CSL513A
3.6610	5-1/16	CSL174	CSL274
3.6610	5-1/2	CSL626	CSL726
3.6614	7		CSL930 (2mm wall)
3.6710	5-1/2	CSL1106	CSL2206
3.6800	5-1/8	CSL194	CSL294
3.6800	5-1/2	CSL1173	CSL2273
3.6800	6	CSL124	CSL224
3.6875	5-1/8	CSL1165	CSL2265
3.6875	6	CSL1166	CSL2266
3.6875	7-9/16	CSL1148	CSL2248
3.6875	10-1/4	CSL414	CSL514
3.7190	7-3/4	CSL145	CSL245
3.7360	5-1/2	CSL1149	CSL2249
3.7500	5-7/8	CSL126	CSL226
3.7500	6	CSL139	CSL239
3.7500	6-1/16	CSL117	CSL217
3.7500	7-1/4	CSL120	CSL220
3.7500	10-1/4	CSL415A	CSL515A#
3.7800	5-1/2	CSL173	CSL273
3.7813	7-7/8	CSL146	CSL246
3.8000	5-1/4	CSL1133	CSL2233
3.8000	5-7/8	CSL1123	CSL2223
3.8000	5-7/8	CSL1123N	CSL2223N
3.8000	6	CSL138†	CSL238
3.8000	6-1/8	CSL1101	CSL2201
3.8000	6-3/8	CSL183	CSL283
3.8000	6-7/8	CSL1124	CSL2224
3.8000	6-15/16	CSL143	CSL243
3.8125	6-7/8	CSL162	CSL262
3.8125	10-1/4	CSL428A	CSL528A
3.8750	5-3/4	CSL188	CSL288
3.8750	5-7/8	CSL122A	CSL222A
3.8750	6-1/4	CSL181	CSL281
3.8750	6-3/8	CSL133	CSL233
3.8750	6-7/16	CSL182	CSL282
3.8750	7	CSL165†	CSL265
3.8750	7-1/2	CSL101	CSL201

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CYLINDER BORE INCHES	LENGTH	3/32" WALL	1/8" WALL
		PART NO.	PART NO.
3.8750	10-1/4	CSL416A	CSL516A#
3.9000	6-15/16		CSL308F (Flanged 1/16" wall)
3.9100	6	CSL116	CSL216
3.9375	6-3/4	CSL103	CSL203
3.9375	6-7/8	CSL1151	CSL2251
3.9375	10-1/4	CSL429A	CSL529A
3.9650	6	CSL1119	
3.9688	6		CSL2219
3.9760	6-1/4	CSL1152	CSL2252
4.0000	5-1/16	CSL193	CSL293
4.0000	5-1/8	CSL1113A	CSL2213A
4.0000	5-1/2	CSL159	CSL259
4.0000	5-5/8	CSL127	CSL227
4.0000	5-3/4	CSL1104	CSL2204
4.0000	5-3/4	CSL1104N	CSL2204N
4.0000	5-7/8	CSL198†	CSL298
4.0000	5-1/2	CSL198F (Flanged 1/16" wall)	
4.0000	6	CSL1170	
4.0000	6-1/16	CSL129	CSL229
4.0000	6-1/4	CSL136	CSL236
4.0000	6-1/4	CSL136HP	CSL236HP
4.0000	6-7/16	CSL1153	CSL2253
4.0000	6-1/2	CSL180†	CSL280
4.0000	6-7/8	CSL137	CSL237
4.0000	7-7/8	CSL157	CSL257
4.0000	9-3/8	CSL175	CSL275
4.0000	10-1/4	CSL417A	CSL517A#
4.0312	6-3/8	CSL1154	CSL2254
4.0400	6-3/4	CSL160	CSL260
4.0500	6-1/4	CSL131	CSL231
4.0500	6-1/4	CSL1139 (4.403 O.D.)	
4.0500	6-5/16	CSL195†	CSL295
4.0625	6-5/16	CSL167	CSL267
4.0625	6-1/2	CSL1102	CSL2202
4.0625	10-1/4	CSL489	CSL589
4.0625	11	CSL430	CSL530
4.0820	6-7/8	CSL1155	CSL2255
4.0937	6	CSL179	CSL279
4.0940	6-1/4	CSL1179N	CSL2279N
4.1100	6-7/8	CSL1174	CSL2274
4.1100	6-7/8	CSL1174HP	CSL2274HP
4.1250	6-1/16	CSL164	CSL264
4.1250	6-1/4	CSL161	CSL261
4.1250	6-1/4	CSL161HP	CSL261HP
4.1250	6-3/8	CSL1109	CSL2209
4.1250	6-1/2	CSL172	CSL272

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CYLINDER BORE INCHES	LENGTH	3/32" WALL	1/8" WALL
		PART NO.	PART NO.
4.1250	6-3/4	CSL130†	CSL230
4.1250	7-1/2	CSL1156	CSL2256
4.1250	10-1/4	CSL418A	CSL518A#
4.1500	6-1/8	CSL118	CSL218
4.1875	6-3/4	CSL186	CSL286
4.1875	12-1/4	CSL432A	CSL532A
4.2330	6-1/4	CSL1158	CSL2258
4.2500	6	CSL199	CSL299
4.2500	6-1/2	CSL196†	CSL296
4.2500	7	CSL197†	CSL297
4.2500	7	CSL197HP	CSL297HP
4.2500	7-1/2	CSL106	CSL206
4.2500	12-1/4	CSL419A	CSL519A#
4.3000	7-1/2	CSL187	CSL287
4.3125	6-3/4	CSL1159	CSL2259
4.3125	12-3/4	CSL420A	CSL520A
4.3200	6-3/4	CSL121	CSL221
4.3200	7	CSL114 (4.5105 O.D.)	CSL214 (4.5730 O.D.)
4.3520	6-1/4	CSL169†	CSL269
4.3500	5-7/8	CSL1114	CSL2214
4.3600	6	CSL128	CSL228
4.3600	6-1/4	CSL1125	CSL2225
4.3600	6-7/8	CSL1160	CSL2260
4.3750	7-1/2	CSL1161	CSL2261
4.3750	12-1/4	CSL421A	CSL521A#
4.3750	12-3/4	CSL487	CSL587
4.4000	8-1/2	CSL1176	CSL2276
4.4370	12-3/4	CSL427	CSL527
4.4370	12-1/4		CSL662 (4.7150 O.D.)
4.5000	7-3/8	CSL1167	
4.5000	7-3/4	CSL1126	CSL2226
4.5000	8	CSL1126X†	CSL2226X
4.5000	8		CSL2226X .020
4.5000	8-1/4	CSL1162	CSL2262
4.5000	8-3/4		CSL276 (Angle top)
4.5000	8-3/4	CSL1175	CSL2275
4.5000	9	CSL1163	CSL2263
4.5000	12-1/4	CSL422A	CSL522A#
4.5620	7-1/2	CSL1117	CSL2217
4.5675	7-5/8	CSL168	CSL268
4.5675	12-1/2	CSL431	CSL531
4.6250	12-1/2	CSL423	CSL523
4.6875	13	CSL464	CSL564
4.7500	14	CSL465	CSL565
4.8750	7-5/8	CSL113	CSL213
4.8750	13		CSL525

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CYLINDER BORE INCHES	LENGTH	3/32" WALL	1/8" WALL
		PART NO.	PART NO.
5.0000	13		CSL526#
5.0000	14	CSL426	
5.0625	14		CSL566
5.1250	7-1/4	CSL1164	CSL2264
5.1250	14		CSL567
5.2500	14-1/4		CSL568
5.3750	14-1/4		CSL569
5.5000	17-1/2		CSL570
5.6250	17-1/2		CSL571
5.7500	17-1/2		CSL572
5.8750	17-1/2		CSL573
6.0000	17-1/2		CSL574
6.1250	17-1/2		CSL575
6.2500	17-1/2		CSL576
6.5000	17		CSL577
6.7500	17		CSL578
7.0000	17	CSL479	
7.0000	17		CSL579
7.2500	22		CSL580
7.5000	22		CSL581
7.7500	22		CSL582
8.0000	22		CSL583
8.5000	24		CSL584

#Denotes +.015 available

HP Denotes higher grade material used

† Denotes available in 1/16" wall-add X to sleeve number

F suffix denotes flanged sleeve



**We are automotive**



# FINISHED CYLINDER SLEEVES



## CHEVROLET/GM

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
<b>NEW!</b> 2.2-F 00-04 GM 88984129	<b>CSL326F</b>	3.388	3.503	5.590	3.758	0.188	Ecotec I.D. is finished honed
2.3-A,B 4CYL 71-77	<b>CSL307FXV</b>	3.500	3.744	5.750	3.742	0.180	Vega I.D. is finished honed
4.1-8 V8 82-88	<b>CSL327F</b>	3.465	3.892	5.580	4.213	N/A	Cadillac I.D. is finished honed
<b>NEW!</b> SLEEVE ASSY. 4.2-S I-6 02-07	<b>SA161</b>	CONTAINS CSL327F, 3 RING STD. COMPRESSION PISTON & RINGS & O RING					
	<b>CSL331F</b>	3.632	3.800	5.694	4.054	0.195	Trailblazer
4.5-5 88-89	<b>CSL328F</b>	3.623					Cadillac I.D. is finished honed
SLEEVE ASSY. 4.5-3,8 90-92	<b>SA171</b>	CONTAINS CSL328F, 3 RING STD. COMPRESSION PISTON & RINGS & O RING					
	<b>CSL328F</b>	3.623					Cadillac I.D. is finished honed
SLEEVE ASSY. 4.9-B 91-95	<b>SA170</b>	CONTAINS CSL328F, 3 RING STD. COMPRESSION PISTON & RINGS & O RING					
	<b>CSL328F</b>	3.623					Cadillac I.D. is finished honed
<b>NEW!</b> SLEEVE ASSY. 5.7-G,S 97-04	<b>SA170</b>	CONTAINS CSL328F, 3 RING STD. COMPRESSION PISTON & RINGS & O RING					
	<b>CSL332F</b>	3.870	4.180	5.600	4.320	0.285	LS1

## CONTINENTAL

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
Z129, Z134, 4CYL.	<b>CSL311F</b>	3.375	3.820	6.500	3.820	0.248	Continental
SLEEVE ASSY.	<b>SA214</b>	CONTAINS SLEEVE, RINGS, PISTON					

## CUMMINS

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
14L OHV DIESEL NT-NH 855 OE# 3055099	<b>CSL335FS</b>	5.500	6.200	11.290	6.560	0.355	Cummins Sleeve I.D. is finished W/Seal Ring Kit honed

## FORD INDUSTRIAL / TRACTOR

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
120 4CYL. 2N, 8,9N 39-53 TO S/N 433577	<b>CSL301F</b>	3.188	3.345	6.500	3.344	0.050	(.040" Wall) I.D. is finished
	<b>CSL304F</b>	3.188	3.367	6.500	3.405	0.060	(.090" Wall) honed
	<b>CSL105F</b>	3.157	3.378	6.500	3.430	0.090	(.095" Wall)
SLEEVE ASSY.	<b>SA81</b>	CONTAINS CSL301F, 4 RING STD. COMPRESSION PISTON & RINGS					
SLEEVE ASSY.	<b>SA85</b>	CONTAINS CSL301F, 3 RING STD. COMPRESSION PISTON & RINGS					
SLEEVE ASSY.	<b>SA104</b>	CONTAINS CSL301F, HIGH COMPRESSION PISTON & RINGS					
120 4CYL. 2N,8,9N TO S/N 433577 39-51 AFTER S/N 433577 51-53	<b>CSL304F</b>	3.188	3.410	6.500	3.405	0.060	(.090" Wall) I.D. is finished honed
SLEEVE ASSY.	<b>SA82</b>	CONTAINS CSL304F, 4 RING STD. COMPRESSION PISTON & RINGS					
SLEEVE ASSY.	<b>SA86</b>	CONTAINS CSL304F, 3 RING STD. COMPRESSION PISTON & RINGS					
SLEEVE ASSY.	<b>SA105</b>	CONTAINS CSL304F, HIGH COMPRESSION PISTON & RINGS					

# FINISHED CYLINDER SLEEVES



## FORD INDUSTRIAL / TRACTOR (continued)

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
134 4CYL. NAA, NAB 53-65 500-700 SERIES	<b>CSL307F</b>	3.438	3.744	6.940	3.742	0.180	(.109 Wall) I.D. is finished honed
172 4cyl. 800,900 55-65 MULTI-FUEL	<b>CSL308F</b>	3.900	4.244	6.940	4.242	0.140	(.100" Wall) I.D. is finished honed

## HERCULES

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
HERCULES DJXC	<b>CSL333F</b>	3.750	4.000	8.940	4.085	1.192	DJXC

## HONDA

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
1.8L B18 (81mm Bore)	<b>CSL347F</b>	3.080	3.500	5.400	3.800	2.000	Honda/Acura Double Flat
1.8L B18 (81mm Bore)	<b>CSL348F</b>	3.080	3.500	5.400	3.800	2.000	Honda/Acura Single Flat

**NEW!**

(2 of each sleeve must be ordered to complete engine)

## IHC

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
RD372,406,450,450A RED50	<b>CSL325F</b>	4.375	4.565	8.690	4.562	0.125	Navistar/IHC Truck (1/16" wall)

## TOYOTA

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
2.2L L4 DIESEL TRUCK 1983	<b>CSL346F</b>	3.520	3.703	6.330	3.969	0.140	Toyota
3980cc 2H 6CYL. DIESEL	<b>CSL334F</b>	3.550	3.724	7.245	3.964	0.102	Toyota

## UNIVERSAL

APPLICATION	PART NUMBER	I.D.	O.D.	LENGTH	FLANGE DIA.	FLANGE HEIGHT	DESCRIPTION
UNIVERSAL FLANGED SLEEVE	<b>CSL330F</b>	3.970	4.300	6.000	4.500	0.190	Toyota
UNIVERSAL FLANGED SLEEVE	<b>CSL329F</b>	4.375	4.629	8.125	4.742	0.200	Toyota

# HEAVY DUTY CYLINDER SLEEVES



## ALLIS CHALMERS

APPLICATION	PART NUMBER	BORE	FLANGE		SLEEVE O.D. AT			LENGTH	FIRE WALL
			O.D.	WIDTH	PILOT	BARREL	SEAL		
685T,6000,7000,10000,11000 & MARK II DIESEL ENGINES WITH SHALLOW CUP PISTON DESIGN	<b>CSL344FS</b>	4-7/16	5.251	0.3163	5.031	4.937	4.968	10-13/16	0.044
D175,DA175,D262,DA262,6D262 DIESEL ENGINES & G262 GAS ENGINE	<b>CSL345FS</b>	3-9/16	3.98	0.25	3.912	3.873	3.84	8-1/16	NO
B,BE,B15,B125 GAS ENGINES	<b>CSL338FS</b>	3-3/8	3.994	0.248	3.778	3.74	3.716	6-9/16	NO
D2200,D2800,D2900,433,433T,649,649T DIESEL ENGINES & G2800 GAS ENGINE	<b>CSL336FS</b>	3-7/8	4.627	0.319	4.437	4.31	4.375	8-1/8	0.045

## CASE

APPLICATION	PART NUMBER	BORE	FLANGE		SLEEVE O.D. AT			LENGTH	FIRE WALL
			O.D.	WIDTH	PILOT	BARREL	SEAL		
A-267D, A-401D DIESEL ENGINE	<b>CSL343FS</b>	4-1/8	4.997	0.252	4.823	4.75	4.658	9-25/32	0.030
A-301,A-301D AFTER S/N 7070351, A-301DF,A-451D DIESEL ENGINE	<b>CSL342FS</b>	4-3/8	5.172	0.252	4.965	4.921	4.8765	10.200	0.50
A-301BD,A-451BD,A-451BDT DIESEL ENGINE	<b>CSL340FS</b>	4-3/8	5.125	0.252	4.966	4.92	4.876	10.200	0.03

## JOHN DEERE

APPLICATION	PART NUMBER	BORE	FLANGE		SLEEVE O.D. AT			LENGTH	FIRE WALL
			O.D.	WIDTH	PILOT	BARREL	SEAL		
254,381,4270 (BLOCKS MARKED R26160, R32020, R40850). JD404, (BLOCKS MARKED R26070, R33180, R34340, R40890, R40900)	<b>CSL341FS</b>	4-1/4	5.125	0.253	4.876	4.8125	4.628	9-1/8	0.04

NOTE: All CSLXXXFS numbers include O Ring Seals



## FRACTION / DECIMAL EQUIVALENT CHART

	1/64"	.015625"
1/32"		.03125"
	3/64"	.046875"
1/16"		.0625"
	5/64"	.078125"
3/32"		.09375"
	7/64"	.109375"
1/8"		.125"
	9/64"	.140625"
5/32"		.15625"
	11/64"	.171875"
3/16"		.1875"
	13/64"	.203125"
7/32"		.21875"
	15/64"	.234375"
1/4"		.250"
	17/64"	.265625"
9/32"		.28125"
	19/64"	.296875"
5/16"		.3125"
	21/64"	.328125"
11/32"		.34375"
	23/64"	.359375"
3/8"		.375"
	25/64"	.390625"
13/32"		.40625"
	27/64"	.421875"
7/16"		.4375"
	29/64"	.453125"
15/32"		.46875"
	31/64"	.484375"
1/2"		.500

	33/64"	.515625"
17/32"		.53125"
	35/64"	.546875"
9/16"		.5625"
	37/64"	.578125"
19/32"		.59375"
	39/64"	.609375"
5/8"		.625"
	41/64"	.640625"
21/32"		.65625"
	43/64"	.671875"
11/16"		.6875"
	45/64"	.703125"
23/32"		.71875"
	47/64"	.734375"
3/4"		.750"
	49/64"	.765625"
25/32"		.78125"
	51/64"	.796875"
13/16"		.8125"
	53/64"	.828125"
27/32"		.84375"
	55/64"	.859375"
7/8"		.875"
	57/64"	.890625"
29/32"		.90625"
	59/64"	.921875"
15/16"		.9375"
	61/64"	.953125"
31/32"		.96875"
	63/64"	.984375"
1"		1.00"

**METRIC CONVERSION - 1mm = .03937**