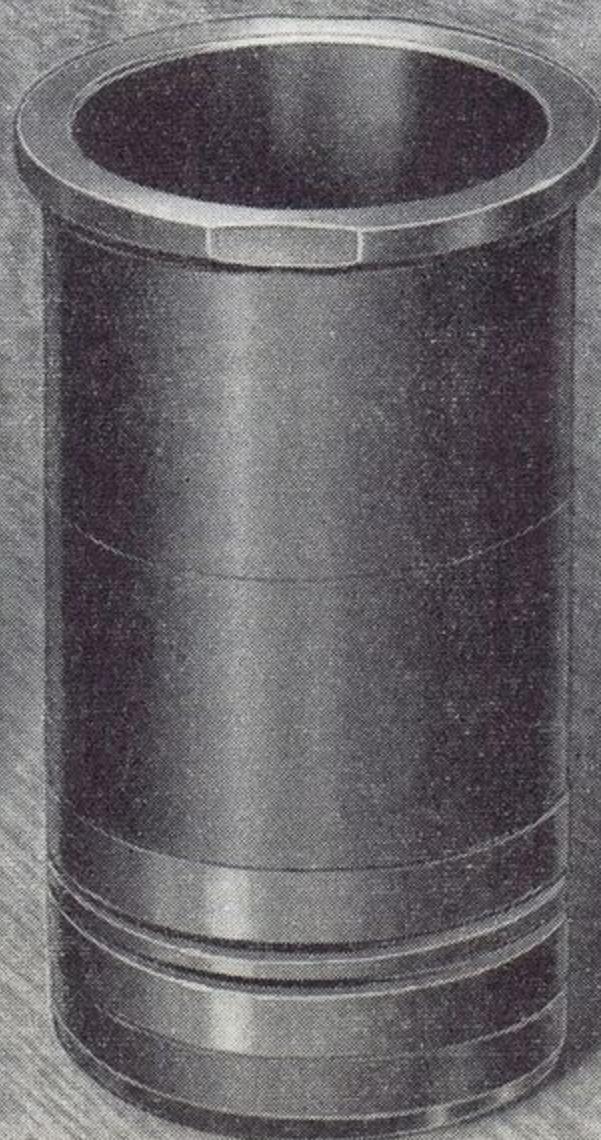
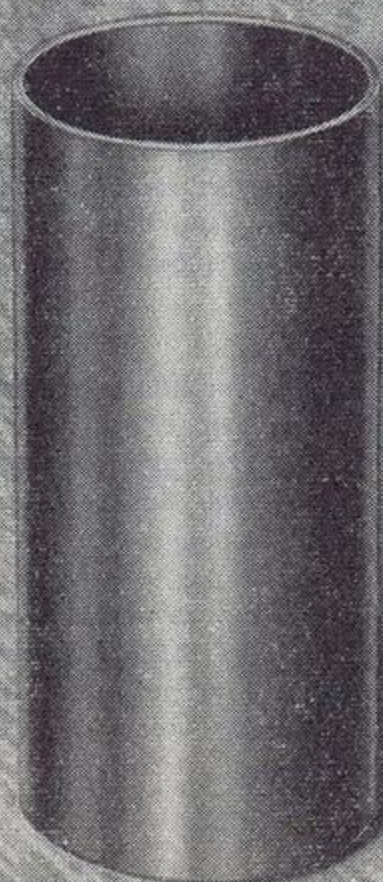
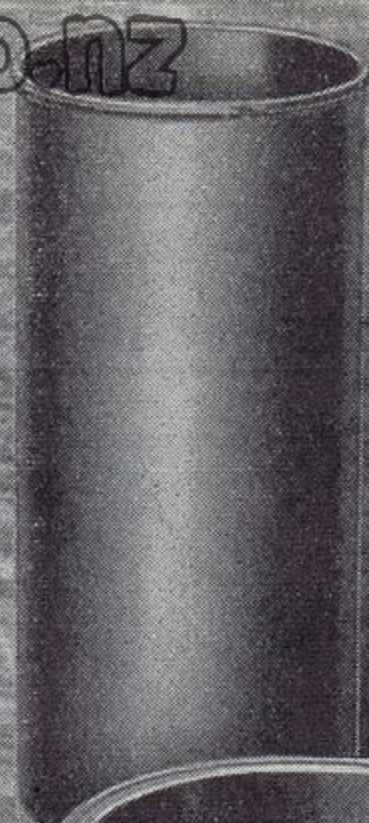
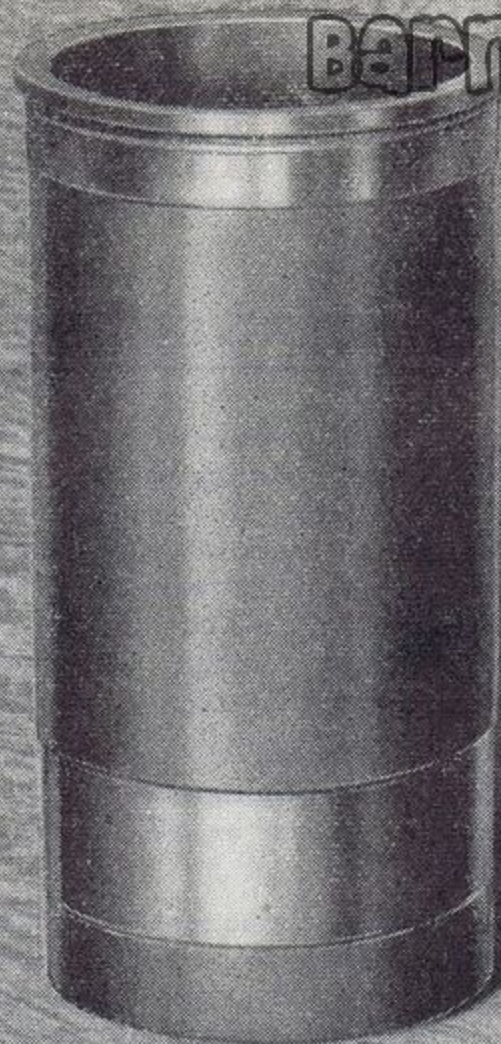


BARNSTORMERS.CO.NZ



**QUALITY
CYLINDER
LINERS**

GENERAL INFORMATION AND FITTING INSTRUCTIONS

Hepolite Cylinder Liners are listed under three different letter codes which are shown as a prefix to the numerical reference shown on each carton and marked on each liner. It is important that the appropriate instructions are carefully read and followed.

FS LINERS

FS Liners are generally of the press-fit, dry type and are fine bored internally with an allowance of $\cdot 015/\cdot 020$ " for finishing in position. The following procedure is recommended.

Enlarge the cylinder bore to the size shown on the label of the carton, working to a tolerance of $\pm \cdot 000$ "– $\cdot 0005$ ". The bores should be perfectly round and parallel and a smooth finish to ensure maximum contact. If the bores are made to these instructions the liner will have the correct interference fit. Before fitting, thoroughly clean the outside of the liner and the cylinder bore and smear with Pressoline or similar compound to ensure smooth insertion. Locate the liner squarely in the cylinder bore and press home using a power press of $2\frac{1}{2}$ to $3\frac{1}{2}$ tons capacity if available.

After fitting, cut out or file out the connecting rod slots and valve clearances where required, then finish the bore of the liner to the standard bore size shown on the label of the carton to a tolerance of $\pm \cdot 001$ "– $\cdot 000$ " for all pistons excepting 'RS' type Split Skirt Pistons, where the bore should be finished to a tolerance of $\pm \cdot 000$ "– $\cdot 0005$ ". (This does not apply to 'RSW' Pistons, which should be fitted to bores finished to the normal tolerance of $\pm \cdot 001$ "– $\cdot 000$ ").

PFH LINERS

PFH Liners are generally of the press-fit, dry type and are smooth bored or honed internally with an allowance of $\cdot 002$ " to $\cdot 003$ " for finishing in position by honing. **It must not be assumed they are fully finished.** The same fitting procedure adopted for FS Type Liners should be used except that, of course, there will be less stock to remove from the bore after pressing into position. When flanged liners are fitted it is important that they have the correct protrusion above the surface of the cylinder block as recommended by the engine builders. If not, the flange recess should be deepened or shimmed to suit.

PF LINERS

PF Liners are generally **push fit dry type, or wet type** and are fully finished requiring no further machining. With this type of liner it is particularly important that the protrusion of the liner above the surface of the block after fitting is as recommended by the Engine Builder. The recess should be deepened or shimmed up to ensure this. The seating surface for the flange must be perfectly true and square with the parent bore so that no undue stress is placed on the liner when tightening the cylinder head.

(i) **Push-fit, dry type** liners should only be used in engines specially designed for them. The seating surfaces in the

cylinder block should be thoroughly cleaned and any lacquer or carbon removed. Before inserting the new liners, wipe the external surfaces perfectly clean and remove by hand honing with a flat stone any burrs which may be present on either the liner exterior or in the recesses. Press the liner firmly into position, and check the bore to ensure that it is round within $\cdot 001$ " indicator reading. If it is more than $\cdot 001$ " out of round, remove and turn through 90° and re-insert.

If the liner bore is still more than $\cdot 001$ " out of round, remove and check cylinder block for distortion, and if this is not too pronounced, it may be corrected by lightly honing the bore of the block.

Push-fit type cylinder liners can be supplied $\cdot 015$ " and $\cdot 030$ " oversize on outside diameter for reconditioning distorted cylinders. Where cylinders have been reconditioned and distortion still occurs, we recommend replacing the push-fit liner with a press-fit type, finishing the bore in position.

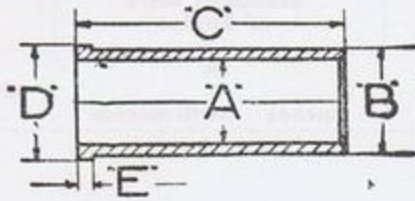
(ii) **Wet type cylinder liners are only supplied complete with the required sealing rings and gaskets.** The cylinder liners should be carefully compared with the old ones withdrawn to see that they are the correct type, particularly with regard to the positioning of the sealing ring grooves and the flange design. Remove all scale and rust from the seating surfaces in the cylinder and clear all deposit from the water passages. Wipe clean the contact faces of the new liners and also the new rubber sealing rings and/or gaskets where these are fitted. Smear the outside of the liners with Pressoline or similar compound to aid insertion and slide on the gaskets and/or assemble the rubber sealing rings in their grooves, making sure that they are not twisted and that the rubber surface is not cut or ruptured in the operation. Sufficient lubricant should be used to ensure that the rings can roll in their grooves during insertion, otherwise there is danger of them climbing out, becoming wedged and distorting the liner bore. The same care should be taken with sealing rings which fit in the grooves in the cylinder block. The liners should now be carefully but firmly pushed in place, but if really hard pressure is required, remove and check that all rings and gaskets are still in their correct position. Finally, check liner bore to ensure that no distortion has been induced by over tight sealing rings or incorrectly seating flange.

Make this test for engine overhaul

To decide whether cylinders require reconditioning, withdraw pistons and measure cylinder wear. If this does not exceed $\cdot 007$ ", new rings may effect a marked improvement in engine performance. Normal rings will not successfully follow cylinders worn in excess of this amount, and cylinders worn $\cdot 007$ " and over, require reconditioning, that is, for the average class of car. Additional life can be obtained from cylinders worn in excess of $\cdot 007$ " by fitting Hepolite Oilmaster Ring Sets. With larger engines, and in particular diesel engines, cylinder reconditioning is not usually necessary before the maximum wear reaches $\cdot 020$ ".

The letters preceding the Ref. No. indicate the internal finish of the liner.

- "FS." Denotes a bored finish with .015"/.020" for finishing in position.
 "PFH." Denotes a ground finish with .002"/.003" for finishing in position.
 "PF." Denotes a ground or honed finish requiring no further machining after fitting.



Liners listed as "Flanged" or "Plain" type can be supplied only as shown.

Where no definition is given liners can be supplied either Flanged or Plain at the same price, but liners will be supplied Plain unless Flanged liners are specified on the order.

All liners are supplied fully finished on outside diameter.

Make	Year and Model	Type of Liner	Standard Bore of Engine		Bore out Block to these dimensions plus .000" minus .0005"				Ref. No.
			Inches	Millimetres	B Outside Dia.	D Flange Dia.	E Flange Width	C Overall Length	
A.J.S.									
1949/56	498 c.c. O.H.V. 20, Spring Twin, 2 Cyl.	Plain	2.5984"	66 ^m / _m	2 ³ / ₄ "	...	...	5 ¹ / ₈ "	FS.2101
1935/47	347 c.c. O.H.V. 16, 16M, 26, 26SS, 26T, Silver Streak, Single and 2 Port. 1 Cyl. (For Cast Iron Barrels Only).		2 ²³ / ₃₂ "	69.056 ^m / _m	2 ²⁷ / ₃₂ "	...	...	6 ⁵ / ₁₆ "	FS.1070
1948/59	347 c.c. O.H.V. 16M, 16MS, 1 Cyl. (For Cast Iron Barrels Only)	Plain	2 ²³ / ₃₂ "	69.056 ^m / _m	2 ²⁷ / ₃₂ "	...	...	6 ¹³ / ₃₂ "	FS.2590
1948/59	347 c.c. O.H.V. 16M, 16MS, 16MCS, Competition, 1 Cyl. (For Alum. Barrels Only) (Special Material).....		2 ²³ / ₃₂ "	69.056 ^m / _m	2.844"	2.969"	3 ¹ / ₁₆ "	6 ²⁵ / ₆₄ "	FS.2125
1946/59	498 c.c. O.H.V. 18, 18S, 1 Cyl....	Plain	3 ¹ / ₄ "	82.548 ^m / _m	3.406"	...	...	6 ⁵ / ₁₆ "	FS.1933

ARIEL

1954/9	197 c.c. O.H.V. LH, Colt 200, 1 Cyl.	Plain	2.3617"	59.986 ^m / _m	63 ^m / _m	...	...	4.87"	FS.2513
1948/57	498 c.c. O.H.V. KG De Luxe, KH, Red Hunter, Fieldmaster, 2 Cyl. (For Cast Iron Barrels Only)...	Plain	2.4798"	62.987 ^m / _m	66 ^m / _m	...	...	5 ⁵ / ₈ "	FS.2489
1954	498 c.c. O.H.V. KHA, Red Hunter, 2 Cyl. (2 Con-Rod Slots) (For Alum. Barrels Only)	Flanged	2.4798"	62.987 ^m / _m	2.6855"	2.927"	5 ⁵ / ₃₂ "	5 ²¹ / ₃₂ "	FS.2713
1937/49	1000 c.c. O.H.V. 4G, Mark I, Square Four, 4H, 4 Cyl. (For Cast Iron Barrels Only)	Plain	2.560"	65.023 ^m / _m	68 ^m / _m	...	...	5 ¹ / ₄ "	FS.1773
1950/9	1000 c.c. O.H.V. 4G, Mark I, Mark II, Square Four, 4 Cyl. (For Alum. Barrels Only).....	Flanged	2.560"	65.023 ^m / _m	2 ³ / ₄ "	2 ⁷ / ₈ "	1 ¹ / ₈ "	5 ⁵ / ₁₆ "	FS.2612
1954/9	650 c.c. O.H.V. FH Huntmaster, 2 Cyl.	Plain	2.7555"	69.989 ^m / _m	2 ⁷ / ₈ "	...	...	5 ⁷ / ₈ "	FS.2131
1933/59	350 c.c. O.H.V. NF, NF3, NG, NH, Red Hunter, 1 Cyl.....	Plain	2.834"	71.983 ^m / _m	75 ^m / _m	...	...	6"	FS.1064
1928/31	500 c.c. O.H.V. Single Port C, D, F, G, VF31	Plain	3.221"	81.812 ^m / _m	84.8 ^m / _m	...	...	6 ⁵ / ₈ "	FS.755
1935/59	500 c.c. O.H.V. Red Hunter VG, VH, 1 Cyl. (For Cast Iron Barrels Only)	Flanged	3.221"	81.812 ^m / _m	3 ⁷ / ₁₆ "	3.778"	.170"	6 ¹ / ₂ "	FS.2417
1950/9	500 c.c. O.H.V. Red Hunter, VCH, VHA, HT5, 1 Cyl. (For Alum. Barrels Only)								
1931/2	550 c.c. S.V. SB31, SB32, Sloping Engine.....	Plain	3.401"	86.384 ^m / _m	89.4 ^m / _m	...	...	7"	FS.752
1932/5	550 c.c. S.V. VB, VB33, Vertical Engine.....								
1933/5	550 c.c. S.V. VA3, VA4.....								
1936/58	600 c.c. S.V. VB.....								

KEY TO ALL SYMBOLS AND ABBREVIATIONS IS ON PAGES III to VII and PAGES 348-349
 PLEASE REFER TO THESE BEFORE ORDERING

VACRIT CYLINDER LINERS

MOTOR CYCLES

SCOOTERS, MOPEDS
AND MOTOR CYCLE ENGINES



Make	Year and Model	Type of Liner	Standard Bore of Engine		Bore out Block to these dimensions plus .000" minus .0005"				Ref. No.
			Inches	Millimetres	B Outside Dia.	D Flange Dia.	E Flange Width	C Overall Length	

BROCKHOUSE

248 c.c. S.V. 1 Cyl.....	Plain	2.5394"	64.5 ^m / _m	2.688"	...	...	5 ⁵ / ₁₆ "	FS.2144
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B.S.A.

1947/50 500 c.c. O.H.V. A7, A7 Star Twin, 2 Cyl.	Plain	2.4405"	61.988 ^m / _m	2.594"	...	...	5 ³ / ₄ "	FS.2012
1930/4 250 c.c. O.H.V. B1, B2, B3, B4, 1 Cyl.	...	2.4803"	63 ^m / _m	66 ^m / _m	68.25 ^m / _m	5 ^m / _m	5 ¹ / ₂ "	FS.639
1939/57 250 c.c. S.V. C10, C10L, 1 Cyl.	...							
1933/8 250 c.c. S.V. B1, B20, 1 Cyl.....	Plain	2.4803"	63 ^m / _m	66 ^m / _m	...	...	5 ⁹ / ₁₆ "	FS.681
1935/9 250 c.c. O.H.V. B2, B18, B21, B22 Empire Star, 1 Cyl.								
1939/58 250 c.c. O.H.V. C11, C11G, C12 Coil Ignition, 1 Cyl.....	Plain	2.4803"	63 ^m / _m	66 ^m / _m	...	...	5 ¹ / ₄ "	FS.1917
1951/62 500 c.c. O.H.V. A7, 2 Cyl.....	Plain	2.5984"	66 ^m / _m	2 ³ / ₄ "	...	...	5 ¹¹ / ₁₆ "	FS.2207
1959/63 249 c.c. O.H.V. C15, 250 Star, C15T, 250 Trials, 1 Cyl.	Flanged	2.6378"	67 ^m / _m	2 ²⁵ / ₃₂ "	2 ¹⁵ / ₁₆ "	3 ¹ / ₁₆ "	5 ¹ / ₃₂ "	FS.2955
1950/62 650 c.c. O.H.V. A10, Golden Flash, Road Rocket, Super Rocket, 2 Cyl.	Plain	2.7555"	69.989 ^m / _m	2 ⁷ / ₈ "	...	...	5 ⁷ / ₈ "	FS.2131
1952/3 Clubman, 1953/4 Scrambles, 1953/6 Competition 348 c.c. B32 Gold Star (Short Con-Rod Engines from ZB6001) 1 Cyl. (For Alum. Barrels Only) (Special Material).....	Flanged	2.793"	70.942 ^m / _m	3"	3 ¹ / ₁₆ "	.113"	5.820"	FS.2558
1954/9 Clubman, 1955/9 Scrambles 348 c.c. B32 Gold Star, 1 Cyl. (Short Con-Rod) (For Alum. Barrels Only) (Special Material)	Flanged	2.793"	70.942 ^m / _m	3"	3 ¹ / ₁₆ "	.113"	5.630"	FS.2602
1935/6 348 c.c. O.H.V. De Luxe, Single Port, R35-4, R36-17, 1 Cyl.....	Plain	2.7953"	71 ^m / _m	74 ^m / _m	...	...	6 ⁵ / ₁₆ "	FS.734
1936/8 750 c.c. O.H.V. Y13, 2 Cyl.								
1939 B23, 1 Cyl.								
1940 C23, B26, 1 Cyl.....								
1941 B30WD, 1 Cyl.								
1946/59 348 c.c. O.H.V. B31, B32, 1 Cyl.... (For Cast Iron Barrels Only)...								
1937/55 496 c.c. S.V. M20, WD, 1 Cyl.....	Flanged	3.2283"	82 ^m / _m	3.49"	3.56"	1 ¹ / ₈ "	7.310"	FS.1258
1938/58 600 c.c. S.V. M21, 1 Cyl.....								
1949/53 499 c.c. O.H.V. B34 Gold Star, 1 Cyl. (For Alum Barrels Only) (Special Material).....	Flanged	3.344"	84.937 ^m / _m	3.551"	3.778"	1 ¹ / ₈ "	6.030"	FS.2112
1954/62 499 c.c. O.H.V. B34 Gold Star, 1 Cyl. (For Alum. Barrels Only) (Special Material).....	Flanged	3.344"	84.937 ^m / _m	3.551"	3.778"	.113"	5.570"	FS.2662

KEY TO ALL SYMBOLS AND ABBREVIATIONS IS ON PAGES III to VII and PAGES 348-349

PLEASE REFER TO THESE BEFORE ORDERING

Make	Year and Model	Type of Liner	Standard Bore of Engine		Bore out Block to these dimensions plus .000" minus .0005"				Ref. No.
			A		B Outside Dia.	D Flange Dia.	E Flange Width	C Overall Length	
			Inches	Millimetres					

B.S.A. (Continued)

1947/59	499 c.c. O.H.V. B33, B34, M33, 1 Cyl. (For Cast Iron Barrels Only)	Plain	3.3464"	85 ^m / _m	3 1/2"	...	...	6 1/16"	FS.2107
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DOUGLAS

1946/7	348 c.c. O.H.V. T35, Horizontally Opposed Flat Twin, 2 Cyl.	Plain	2.3937"	60.8 ^m / _m	63.75 ^m / _m	...	...	4 11/16"	FS.1772
1948/57	348 c.c. O.H.V. T35, Mark III, IV, V, Dragonfly, 2 Cyl.	Plain	2.3937"	60.8 ^m / _m	2 1/2"	...	...	4.680"	FS.2509
1950/4	348 c.c. O.H.V. 80 Plus, 90 Plus, 2 Cyl.	Flanged	2.3937"	60.8 ^m / _m	2.623"	2 11/16"	3/16"	4.583"	FS.2091

HARLEY DAVIDSON

1929/50	750 c.c. S.V. 45 cubic inches, 2 Cyl.	Plain	2.745"	69.722 ^m / _m	2 7/8"	...	...	6 11/16"	FS.2064
1941/53	1200 c.c. O.H.V. 74 cubic inches Hydralide, 2 Cyl.	Plain	3 7/16"	87.312 ^m / _m	3.594"	...	...	6.835"	FS.2088

HEINKEL

174 c.c. O.H.V. Tourist, Cabin Cruiser, 1 Cyl.	Plain	2.3622"	60 ^m / _m	63 ^m / _m	...	...	117 ^m / _m	FS.3233
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H.R.D.

1948/9	499 c.c. O.H.V. Meteor Series B, Comet, Grey Flash, Series C, 1 Cyl.	Flanged	3.3065"	83.984 ^m / _m	3.562"	3.798"	1/8"	6 1/4"	FS.2586
	998 c.c. O.H.V. Rapide, Black Shadow, Black Lightning, Series B, Series C, 2 Cyl. (For Alum. Barrels Only).								
	As above but +.010" oversize on O.D. for use in distorted barrels	Flanged	3.3065"	83.984 ^m / _m	3.572"	3.798"	1/8"	6 1/4"	FS.2653

INDIAN

248 c.c. S.V. Brave, 1 Cyl.	} Plain	2.5394"	64.5 ^m / _m	2.688"	...	...	5 ⁵ / ₁₆ "	FS.2144
1941/53 S.V. 74 cubic inches, Twin Chief, Bonneville, 80 cubic inches, Blackhawk, Chief, 2 Cyl.....		3 ¹ / ₄ "	82.548 ^m / _m	3 ³ / ₈ "	...	...	7 ³ / ₈ "	FS.1828

Make	Year and Model	Type of Liner	Standard Bore of Engine		Bore out Block to these dimensions plus .000" minus .0005"				Ref. No.
			Inches	Millimetres	B Outside Dia.	D Flange Dia.	E Flange Width	C Overall Length	

J.A.P.

1932/8	350 c.c. O.H.V. Speedway 1 Cyl....	Flanged	2.9134"	74 ^m / _m	77 ^m / _m	81 ^m / _m	1 ¹ / ₈ "	5 ²⁷ / ₃₂ "	FS.1706
1936/8	1100 c.c. O.H.V. Twin, 2 Cyl.....	Plain	3 ³ / ₈ "	85.725 ^m / _m	31 ¹ / ₂ "	...	...	7"	FS.766
1936/8	500 c.c. O.H.V. 600 c.c. S.V. 1 Cyl.								

MATCHLESS

1949/55	498 c.c. O.H.V. G9, Super Clubman, 2 Cyl.	Plain	2.5984"	66 ^m / _m	2 ³ / ₄ "	...	...	5 ¹ / ₈ "	FS.2101
1933/47	347 c.c. O.H.V. D3, G3, G3/L, G4, Clubman & Special, 1 Cyl. (For Cast Iron Barrels Only) ...	Plain	2 ²³ / ₃₂ "	69.056 ^m / _m	2 ²⁷ / ₃₂ "	...	...	6 ⁵ / ₁₆ "	FS.1070
1948/59	347 c.c. O.H.V. G3/L, G3/LS, 1 Cyl. (For Cast Iron Barrels only)	Plain	2 ²³ / ₃₂ "	69.056 ^m / _m	2 ²⁷ / ₃₂ "	...	...	6 ¹³ / ₃₂ "	FS.2590
1948/59	347 c.c. O.H.V. G3/L, G3/LS, G3/LCS Competition, 1 Cyl. (For Alum. Barrels Only). (Special Material)	Flanged	2 ²³ / ₃₂ "	69.056 ^m / _m	2.844"	2.969"	3 ¹ / ₁₆ "	6 ²⁵ / ₆₄ "	FS.2125
1938/59	498 c.c. O.H.V. Clubman, G5, G80, G80S, G90, 1 Cyl.....	Plain	3 ¹ / ₄ "	82.548 ^m / _m	3.406"	...	...	6 ⁵ / ₁₆ "	FS.1933

NORTON

1959/62	249 c.c. O.H.V. Jubilee 250, 2 Cyl.	Flanged	2.3622"	60 ^m / _m	2 ¹ / ₂ "	2 ⁵ / ₈ "	1 ¹ / ₈ "	3 ²⁷ / ₃₂ "	FS.2956
1948/62	500 c.c. O.H.V. 7, 88, Dominator Twin, 2 Cyl. (When fitting this liner the existing cylinder head spigot to be removed).	Flanged	2.5984"	66 ^m / _m	2 ³ / ₄ "	2.842"	.145"	5 ³ / ₈ "	FS.2031
1956/62	597 c.c. O.H.V. 77, 99, Dominator Twin, Nomad Twin, 2 Cyl.....	Flanged	2.6770"	67.996 ^m / _m	2.80"	2.925"	1 ¹ / ₈ "	5 ¹¹ / ₁₆ "	FS.3054
1956/62	348 c.c. O.H.V. 50, 1 Cyl.....	Flanged	2.7953"	71 ^m / _m	2 ¹⁵ / ₁₆ "	3 ¹ / ₁₆ "	3 ¹ / ₁₆ "	5 ⁵³ / ₆₄ "	FS.2957
1948/61	490 c.c. O.H.V. 18, ES2, 1 Cyl....	Plain	3.1102"	79 ^m / _m	3 ¹ / ₄ "	...	...	6 ¹⁵ / ₆₄ "	FS.2032
1929/47	490 c.c. O.H.V. & O.H.C. 18, 20, CSI, ES2, 1 Cyl.....	Plain	3.1102"	79 ^m / _m	82 ^m / _m	...	...	6 ⁵ / ₃₂ "	FS.648
1931/47	490 c.c. S.V. 16H, WD, 1 Cyl.....	Plain	3.1102"	79 ^m / _m	82 ^m / _m	...	...	7"	FS.767
1934/52	490 c.c. O.H.C. International 30, 1 Cyl.	Plain	3.1102"	79 ^m / _m	3 ¹ / ₄ "	...	...	6 ¹⁷ / ₃₂ "	FS.2033
1948/54	490 c.c. S.V. 16H, 1 Cyl.....	Plain	3.1102"	79 ^m / _m	3 ¹ / ₄ "	...	...	7 ³ / ₁₆ "	FS.2034
	499 c.c. O.H.C. 30 Manx 1 Cyl.... (For Alum. Barrels Only) (Special Material).	Flanged	3.1346"	79.62 ^m / _m	3.281"	3.406"	.193"	6 ¹ / ₂ "	FS.2127
1931/9	633 c.c. S.V. Big 4, 1 and 14, 1 Cyl.	Plain	3.2283"	82 ^m / _m	85 ^m / _m	...	...	7 ⁹ / ₁₆ "	FS.1032
1947/54	596 c.c. S.V., Big 4, No. 1, 1 Cyl....	Plain	3.2283"	82 ^m / _m	3 ³ / ₈ "	...	...	7 ⁷ / ₁₆ "	FS.2035

KEY TO ALL SYMBOLS AND ABBREVIATIONS IS ON PAGES III to VII and PAGES 348-349
PLEASE REFER TO THESE BEFORE ORDERING

Make	Year and Model	Type of Liner	Standard Bore of Engine		Bore out Block to these dimensions plus .000" minus .0005"				Ref. No.
			Inches	Millimetres	B Outside Dia.	D Flange Dia.	E Flange Width	C Overall Length	

P. & M.

1947/60	250 c.c. O.H.V. Panther, 65, 1 Cyl. (For Cast Iron Barrels Only).....	Plain	2.3622"	60 ^m / _m	2 1/2"	...	...	6 1/8"	FS.2202
1947/62	350 c.c. O.H.V. Panther, 75, 1 Cyl. (For Cast Iron Barrels Only).....	Plain	2.7953"	71 ^m / _m	2.938"	...	...	6 3/16"	FS.2203
1931/5	596 c.c. Redwing, 60.....	Plain	3.4252"	87 ^m / _m	90 ^m / _m		...	7 1/8"	FS.652
1933/62	598 c.c. O.H.V. 100, 100S, Panther, Redwing, 1 Cyl.....								

ROYAL ENFIELD

1941/62	346 c.c. O.H.V. WD, G, G2, 350 Bullet, 350 Clipper, Trials, 1 Cyl. }	Plain	2.751"	69.874 ^m / _m	2 7/8"	...	...	5 31/32"	FS.2282
1953/4	692 c.c. O.H.V. Meteor 700, 2 Cyl. (For Cast Iron Barrels Only). (Special Cylinder Liner for re-sleeving Barrel and renewing Cracked Crankcase Spigot).....	Spec. Flange	2.751"	69.874 ^m / _m	3.010"	3 3/32"	1/8"	5 61/64"	FS.2996
1936/55	499 c.c. O.H.V. J, J2, JF, JM, 4 Valve, Bullet De Luxe, 499 c.c. S.V. H, 1 Cyl.	...	3.3071"	84 ^m / _m	87 ^m / _m	90 ^m / _m	3 ^m / _m	6 1/2"	FS.748

SUNBEAM

1946/57	487 c.c. O.H.C. S7, S8, 2 Cyl. (Press fit type) (For Alum. Barrels Only)..... Supplied only in pairs marked 'A' for front cylinder, 'B' for rear cylinder.	Flanged	2.7487"	69.816 ^m / _m	2 15/16"	3 3/16"	3/16"	4 3/4"	FS.2470
1946/57	487 c.c. O.H.C. S7, S8, 2 Cyl. (Push fit type) (For Alum. Barrels Only) Supplied only in pairs marked 'A' for front cylinder, 'B' for rear cylinder.	Flanged	2.7487"	69.816 ^m / _m	2 15/16"	3 3/16"	3/16"	4 3/4"	PF.2534

TRIUMPH

1945/51	349 c.c. O.H.V. De Luxe 3T, Tiger 85, 2 Cyl.....	Plain	2.1653"	55 ^m / _m	57.5 ^m / _m	...	...	5"	FS.1665
1930/3	249 c.c. O.H.V. WA, Single Port, WO, Double Port, 1 Cyl.....	Plain	2.4803"	63 ^m / _m	66 ^m / _m	...	...	5 5/8"	FS.680
1938/59	498 c.c. O.H.V. Tiger 100, Speed Twin, 5T, 2 Cyl. (For Cast Iron Barrels Only)	Spec. Flange	2.4803"	63 ^m / _m	2.670"	...	...	5 17/32"	FS.2543
1951/9	498 c.c. O.H.V. Tiger 100, Trophy, TR5, 2 Cyl. (For Alum. Barrels Only)								
1934/40	249 c.c. O.H.V. 2 Port, 2/1, L2/1, 2H, 2/5, Mark 5, R5, Tiger 70, 1 Cyl.	Plain	2.4803"	63 ^m / _m	2 5/8"	...	...	5 7/8"	FS.1526

KEY TO ALL SYMBOLS AND ABBREVIATIONS IS ON PAGES III to VII and PAGES 348-349
PLEASE REFER TO THESE BEFORE ORDERING

Make	Year and Model	Type of Liner	Standard Bore of Engine		Bore out Block to these dimensions plus .000" minus .0005"				Ref. No.
			Inches	Millimetres	B Outside Dia.	D Flange Dia.	E Flange Width	C Overall Length	

TRIUMPH (Continued)

1937/42 349 c.c. S.V. 3S, 3SE, 3SC, 3SW, De Luxe, WD, 1 Cyl.	Flanged	2.7559" 70 ^m / _m	2.94" 31 ¹ / ₁₆ " 1 ¹ / ₈ " 6.343"	FS.1095
1950/62 649 c.c. O.H.V. 6T, Thunderbird, Tiger 110, Trophy TR6, Bonneville T120, 2 Cyl.....	Plain	2.7953" 71 ^m / _m	2.938" ... 5 ¹ / ₂ "	FS.2100

VELOCETTE

1934/49 248 c.c. O.H.V. MOV, 1 Cyl.....	Plain	2.6772" 68 ^m / _m	71 ^m / _m ... 5 ⁵ / ₁₆ "	FS.1078
1934/50 } 350 c.c. O.H.V. MAC, 1 Cyl. } 1957/60 } (2 Con-Rod Slots) (For Cast Iron Barrels Only).....	Plain	2.6772" 68 ^m / _m	72 ^m / _m ... 6 ¹ / ₂ "	FS.1413
1936/48 348 c.c. O.H.C. KSS, Mk. II, 1 Cyl.	Plain	2.9134" 74 ^m / _m	77 ^m / _m ... 5.794"	FS.739

VINCENT

1950/5 499 c.c. O.H.V. Comet, Series C, Victor, Series D, 1 Cyl.....	Flanged	3.3065" 83.984 ^m / _m	3.562" 3.798" 1 ¹ / ₈ " 6 ¹ / ₄ "	FS.2586
998 c.c. O.H.V. Rapide, Black Shadow, Black Lightning, Series B, Series C, Black Knight, Black Prince, Series D, 2 Cyl. (For Alum. Barrels Only).				
As above but +.010" oversize on O.D. for use in distorted barrels	Flanged	3.3065" 83.984 ^m / _m	3.572" 3.798" 1 ¹ / ₈ " 6 ¹ / ₄ "	FS.2653

A. BORE. ins. or %	B. Outside Dia.	D. Flange Dia.	E. Flange Width	C. Overall Length	Ref. No.	A. BORE. ins. or %	B. Outside Dia.	D. Flange Dia.	E. Flange Width	C. Overall Length	Ref. No.
2.20"	2.32"	2.4"	1/8"	413/16"	FS.128	2 23/32"	2 27/32"			65 1/16"	FS.1070
56m/m	59m/m			513/16"	FS.1543	2.73"	2 7/8"	3"	1/8"	63 3/4"	FS.534
2.230"	2.355"	2 13/32"	1/8"	511/16"	FS.479	69.5m/m	2 7/8"			61 1/2"	FS.801
56.7m/m	2 3/8"			65 1/16"	FS.1738	69.5m/m	2 7/8"	3"	1/8"	63 3/4"	FS.895
2.235"	2 3/8"			55 1/16"	FS.1129	69.5m/m	2 7/8"	3"	1/8"	67 7/8"	FS.1048
57m/m	2 3/8"			51 1/2"	FS.283	69.5m/m	2 7/8"			615/16"	FS.2109
57m/m	2 3/8"			5.669"	FS.853	69.5m/m	2.86"	3"	1/8"	7.165"	FS.400
57m/m	2 3/8"			53 3/4"	FS.1231	69.5m/m	2 7/8"	3"	1/8"	7 11/16"	FS.513
57m/m	2 3/8"	2 1/2"	1/8"	57 7/8"	FS.497	69.5m/m	2 7/8"	3"	1/8"	8.05"	FS.1154
57m/m	2 3/8"			65 1/16"	FS.1124	69.6m/m	2 7/8"			7 3/4"	FS.1486
57m/m	2 3/8"	2 1/2"	1/8"	61 1/2"	FS.711	2.745"	2 7/8"			6 11/16"	FS.2064
2.280"	2.405"			53 1/16"	FS.2291	2 3/4"	2 7/8"			6 1/8"	FS.1713
58m/m	61m/m			61 1/16"	FS.1546	2.751"	2 7/8"			5 31/32"	FS.2282
60m/m	2 1/2"	2 5/8"	1/8"	523/32"	FS.1047	2.7555"	2 7/8"			57 7/8"	FS.2131
60m/m	2 1/2"	2 5/8"	1/8"	57 7/8"	FS.592	70m/m	2.94"	3 1/16"	1/8"	6.343"	FS.1095
60m/m	2.471"	2 9/16"	1/8"	61 7/8"	FS.122	70m/m	2 7/8"			7 1/4"	FS.1395
60m/m	2 1/2"			61 7/8"	FS.2202	71m/m	2.938"			5 1/2"	FS.2100
60m/m	2 1/2"			65 1/16"	FS.1125	71m/m	2.938"			6 3/16"	FS.2203
60m/m	2 1/2"	2 5/8"	1/8"	63 3/8"	FS.500	71m/m	74m/m			6 5/16"	FS.734
60.3m/m	2 1/2"	2 9/16"	1/8"	63 3/8"	FS.581	2.834"	75m/m			6"	FS.1064
60.3m/m	2 1/2"	2 9/16"	1/8"	67 7/8"	FS.556	2.873"	3"			6 1/4"	FS.2284
60.8m/m	2 1/2"			4.680"	FS.2509	2 7/8"	3 1/64"			6 1/16"	FS.2447
61m/m	2 9/16"	2 11/16"	1/8"	61 1/16"	FS.522	2 7/8"	3 1/32"			6 7/8"	FS.1049
61m/m	2 9/16"	2 11/16"	1/8"	63 1/16"	FS.1110	73.5m/m	3.031"			6 7/16"	FS.1985
61.5m/m	2 9/16"	2 11/16"	1/8"	67 1/16"	FS.717	74m/m	77m/m	80m/m	3m/m	5.794"	FS.739
61.5m/m	2 9/16"	2 11/16"	1/8"	73 1/16"	FS.1026	75m/m	3 1/16"			7"	FS.1815
2.4405"	2.594"			53 3/4"	FS.2012	75m/m	3 1/16"	3 3/16"	1/8"	7 3/16"	FS.769
2.4775"	2.604"			51 1/4"	FS.2893	75m/m	3 1/16"	3 3/16"	1/8"	7 1/4"	FS.286
63m/m	66m/m			5.28"	FS.1917	75m/m	78m/m			190m/m	FS.2402
63m/m	2 5/8"			51 1/2"	FS.2448	75m/m	78.6m/m	3 7/32"	1/8"	7.67"	FS.1116
63m/m	66m/m	68.25m/m	5m/m	59 1/2"	FS.639	75m/m	3 1/8"	3 3/16"	1/8"	7 11/16"	FS.919
63m/m	66m/m			59 1/16"	FS.681	75m/m	78.6m/m			8.05"	FS.1117
63m/m	66m/m			55 7/8"	FS.680	3"	3 1/8"			6 1/16"	FS.1211
63m/m	2 5/8"			57 7/8"	FS.1526	3"	3 3/16"			6 7/16"	FS.1585
63m/m	66m/m	69m/m	1/8"	61 7/8"	FS.1643	3"	3 1/8"			7 3/8"	FS.1024
63m/m	2 5/8"			63 1/16"	FS.923	3"	3 1/8"	3 1/4"	3/16"	7 5/8"	FS.449
63m/m	2 21/32"			63 1/16"	FS.503	3 1/16"	3 3/16"			6 1/2"	FS.493
63m/m	2 5/8"	2 3/4"	1/8"	65 1/16"	FS.444	3.063"	3 9/16"			6 7/8"	FS.2300
2.490"	66m/m	69m/m		61 7/8"	FS.1646	78m/m	83m/m			160m/m	FS.2401
2 1/2"	2.686"			527/32"	FS.966	78m/m	3.219"			7"	FS.2090
2 1/2"	2 5/8"	2 3/4"	1/8"	57 7/8"	FS.517	3 3/32"	3 7/32"			7 3/4"	FS.1269
2 1/2"	66m/m			6"	FS.828	78.994m/m	3 1/4"			6 15/64"	FS.2032
2 1/2"	2 21/32"			65 1/16"	FS.1126	79m/m	3.255"			6"	FS.2848
2 1/2"	2 5/8"			63 7/8"	FS.2547	79m/m	82m/m			6 5/32"	FS.648
2 1/2"	2.635"			6.650"	FS.2055	79m/m	3 1/4"			6 15/64"	FS.2032
2 1/2"	2 5/8"			67 7/8"	FS.990	79m/m	3 1/4"			6 17/32"	FS.2033
2 1/2"	2 5/8"	2 3/4"	1/8"	7"	FS.1008	79m/m	82m/m			7"	FS.767
63.5m/m	2 5/8"	2 3/4"	1/8"	61 1/4"	FS.1232	79m/m	3 1/4"			7 3/16"	FS.2034
63.5m/m	2 5/8"	2 3/4"	1/8"	61 1/2"	FS.614	3 1/8"	3 1/4"			7 1/2"	FS.1719
63.5m/m	2 5/8"			67 7/8"	FS.990	3 1/8"	3 1/4"	3 7/16"	3/16"	7 7/8"	FS.153
63.5m/m	2 5/8"	2 3/4"	1/8"	7"	FS.1008	3 1/8"	3 1/4"	3 7/16"	3/16"	8"	FS.216
63.5m/m	2 5/8"	2 3/4"	1/8"	7 1/16"	FS.1027	3 1/8"	3 1/4"			8 1/16"	FS.1703
64.5m/m	2.688"			55 1/16"	FS.2144	3.126"	3.2515"			6.18"	FS.2063
65m/m	2 11/16"	2 3/4"	1/8"	73 3/4"	FS.1063	3.126"	3 1/4"			7 1/4"	FS.256
2 9/16"	2.707"			617/32"	FS.1946	3.148"	3 9/32"			6 7/16"	FS.1752
65.2m/m	2.719"			615/16"	FS.2110	3.149"	3.281"			5 3/4"	FS.2149
2.5775"	2 23/32"			6"	FS.1788	80m/m	3 9/32"			6 1/2"	FS.1274
65.5m/m	2 23/32"	2 27/32"	1/8"	63 3/4"	FS.1001	80m/m	3 9/32"			7 3/16"	FS.1229
65.5m/m	2 23/32"	2 27/32"	1/8"	73 1/8"	FS.129	80m/m	3 9/32"	3 7/16"	3/16"	10 1/8"	FS.337
66m/m	2 3/4"			51 1/8"	FS.2101	80m/m	83.5m/m	86.5m/m	1/8"	8 3/32"	FS.1132
66m/m	2 3/4"			51 1/16"	FS.2207	3.1785"	3 5/16"	3.455"	3/16"	7 11/16"	FS.2412
66m/m	70m/m	2 7/8"	3/16"	61 1/4"	FS.307	3 3/16"	3 5/16"			6 1/2"	FS.1432
2.60"	2.725"			5.70"	FS.970	3 3/16"	3 5/16"			7 1/2"	FS.1476
2.60"	2 23/32"	2 27/32"	1/8"	7"	FS.1882	3 3/16"	3.304"	3.454"	1/8"	7 11/16"	FS.2115
66.5m/m	69.5m/m			61 1/4"	FS.1631	81.812m/m	84.8m/m			6 5/8"	FS.755
66.5m/m	2 3/4"	2 7/8"	1/8"	65 7/8"	FS.569	82m/m	3 3/8"	3 1/2"	3/16"	5 3/8"	FS.2660
2.619"	2.770"			513/16"	FS.1256	82m/m	3.348"			7 1/4"	FS.1112
67.5m/m	72m/m	75m/m	3m/m	156m/m	FS.1085	82m/m	3.49"	3.56"	1/8"	7.310"	FS.1258
67.5m/m	2 13/16"	2 15/16"	1/8"	71 1/4"	FS.1042	82m/m	3 3/8"			7 7/16"	FS.2035
68m/m	71m/m			55 1/16"	FS.1078	82m/m	85m/m			7 9/16"	FS.1032
68m/m	71m/m			53 7/8"	FS.1728	3 1/4"	3.3755"			5 15/16"	FS.2823
68m/m	2 13/16"			150m/m	FS.1302	3 1/4"	3 3/8"			6"	FS.1715
68m/m	2 13/16"	2 15/16"	1/8"	7"	FS.156	3 1/4"	3.406"			6 5/16"	FS.1933
69m/m	2 7/8"	3"	1/8"	65 7/8"	FS.570	3 1/4"	3 3/8"			6 7/16"	FS.1785
69m/m	2.844"			7"	FS.1114	3 1/4"	3 3/8"			7 3/8"	FS.1828
69m/m	2.86"	3"	1/8"	73 7/8"	FS.121	3 1/4"	3 3/8"			8"	FS.613

KEY TO ALL SYMBOLS AND ABBREVIATIONS IS ON PAGES III to VII and PAGES 348-349
PLEASE REFER TO THESE BEFORE ORDERING

VACRIT LINERS

DIAMETRAL LIST

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A. BORE. ins. or $\frac{m}{m}$	B. Outside Dia.	D. Flange Dia.	E. Flange Width	C. Overall Length	Ref. No.	A. BORE. ins. or $\frac{m}{m}$	B. Outside Dia.	D. Flange Dia.	E. Flange Width	C. Overall Length	Ref. No.
3 $\frac{1}{4}$ "	3 $\frac{3}{8}$ "	3 $\frac{1}{2}$ "	1 $\frac{1}{8}$ "	8 $\frac{1}{4}$ "	FS.981	3 $\frac{5}{8}$ "	3-781"			7 $\frac{1}{4}$ "	FS.2124
3 $\frac{1}{4}$ "	3 $\frac{3}{8}$ "	3 $\frac{1}{2}$ "	3 $\frac{1}{16}$ "	9 $\frac{1}{8}$ "	FS.184	3 $\frac{5}{8}$ "	3 $\frac{3}{4}$ "	3 $\frac{7}{8}$ "	3 $\frac{1}{16}$ "	7 $\frac{11}{16}$ "	FS.1293
3-300"	3 $\frac{7}{16}$ "			7 $\frac{11}{32}$ "	FS.1647	3 $\frac{5}{8}$ "	3 $\frac{13}{16}$ "	3 $\frac{15}{16}$ "	3 $\frac{1}{16}$ "	7 $\frac{15}{16}$ "	FS.1893
3-300"	3 $\frac{7}{16}$ "			8-268"	FS.2280	3 $\frac{5}{8}$ "	3 $\frac{3}{4}$ "			8 $\frac{9}{16}$ "	FS.1701
3 $\frac{5}{16}$ "	3 $\frac{7}{16}$ "	3 $\frac{9}{16}$ "	1 $\frac{1}{8}$ "	7 $\frac{5}{16}$ "	FS.151	95 $\frac{m}{m}$	3 $\frac{7}{8}$ "			9 $\frac{3}{8}$ "	FS.1015
3 $\frac{5}{16}$ "	3-469"			7 $\frac{1}{2}$ "	FS.2121	3 $\frac{3}{4}$ "	3 $\frac{7}{8}$ "	4"	3 $\frac{1}{16}$ "	7 $\frac{3}{4}$ "	FS.863
3 $\frac{5}{16}$ "	3 $\frac{7}{16}$ "	3 $\frac{9}{16}$ "	1 $\frac{1}{8}$ "	7 $\frac{7}{8}$ "	FS.1198	3 $\frac{3}{4}$ "	4"	4 $\frac{1}{32}$ "	5 $\frac{m}{m}$	8 $\frac{1}{4}$ "	FS.2069
3 $\frac{5}{16}$ "	3 $\frac{7}{16}$ "	3 $\frac{9}{16}$ "	1 $\frac{1}{8}$ "	8"	FS.772	3 $\frac{3}{4}$ "	3 $\frac{15}{16}$ "			8 $\frac{1}{2}$ "	FS.3000
85 $\frac{m}{m}$	3 $\frac{1}{2}$ "			6 $\frac{1}{16}$ "	FS.2107	3 $\frac{3}{4}$ "	4"	4 $\frac{1}{32}$ "	5 $\frac{m}{m}$	8 $\frac{3}{4}$ "	FS.846
85 $\frac{m}{m}$	88 $\frac{m}{m}$			7 $\frac{17}{32}$ "	FS.636	3 $\frac{3}{4}$ "	3 $\frac{15}{16}$ "			9"	FS.3001
85 $\frac{m}{m}$	88 $\frac{m}{m}$	89-5 $\frac{m}{m}$	1 $\frac{1}{4}$ "	8-05"	FS.1025	3 $\frac{3}{4}$ "	3 $\frac{29}{32}$ "	4"	3 $\frac{1}{16}$ "	9 $\frac{1}{4}$ "	FS.894
3-35"	3-476"			7 $\frac{3}{8}$ "	FS.1871	3 $\frac{3}{4}$ "	3-910"			10 $\frac{1}{64}$ "	FS.1003
3-35"	3 $\frac{1}{2}$ "	3 $\frac{5}{8}$ "	3 $\frac{1}{16}$ "	7 $\frac{3}{8}$ "	FS.1226	3 $\frac{3}{4}$ "	3-909"			10 $\frac{5}{8}$ "	FS.1694
3 $\frac{3}{8}$ "	3-531"			6"	FS.2854	3 $\frac{3}{4}$ "	3 $\frac{31}{32}$ "			7 $\frac{27}{32}$ "	FS.1692
3 $\frac{3}{8}$ "	3 $\frac{1}{2}$ "			7"	FS.766	98 $\frac{m}{m}$	4 $\frac{1}{16}$ "	4 $\frac{1}{4}$ "	3 $\frac{1}{16}$ "	8-925"	FS.2328
3 $\frac{3}{8}$ "	3 $\frac{17}{32}$ "	3 $\frac{5}{8}$ "	3 $\frac{1}{16}$ "	7 $\frac{1}{16}$ "	FS.2083	3 $\frac{7}{8}$ "	4"	4 $\frac{1}{8}$ "	3 $\frac{1}{16}$ "	7 $\frac{7}{16}$ "	FS.205
3 $\frac{3}{8}$ "	3 $\frac{1}{2}$ "	3 $\frac{5}{8}$ "	1 $\frac{1}{8}$ "	7 $\frac{3}{8}$ "	FS.668	3 $\frac{7}{8}$ "	4-075"			7-52"	FS.1466
3 $\frac{3}{8}$ "	3 $\frac{17}{32}$ "	3 $\frac{5}{8}$ "	3 $\frac{1}{16}$ "	7 $\frac{7}{8}$ "	FS.892	3 $\frac{7}{8}$ "	4 $\frac{1}{16}$ "			9 $\frac{3}{64}$ "	FS.1615
3 $\frac{3}{8}$ "	3 $\frac{1}{2}$ "	3 $\frac{5}{8}$ "	3 $\frac{1}{16}$ "	8 $\frac{3}{8}$ "	FS.551	100 $\frac{m}{m}$	4 $\frac{1}{8}$ "	4 $\frac{1}{4}$ "	3 $\frac{1}{16}$ "	8 $\frac{1}{4}$ "	FS.1310
87 $\frac{m}{m}$	90 $\frac{m}{m}$			7 $\frac{1}{8}$ "	FS.652	100 $\frac{m}{m}$	4 $\frac{1}{8}$ "	4 $\frac{1}{4}$ "	3 $\frac{1}{16}$ "	8 $\frac{11}{16}$ "	FS.1934
3-437"	3-5375"			7 $\frac{3}{8}$ "	FS.1915	100 $\frac{m}{m}$	4 $\frac{3}{16}$ "			9 $\frac{11}{32}$ "	FS.1790
3-437"	3-5375"			7 $\frac{11}{16}$ "	FS.2299	100 $\frac{m}{m}$	4 $\frac{1}{16}$ "	4 $\frac{1}{4}$ "	3 $\frac{1}{16}$ "	9 $\frac{11}{16}$ "	FS.1088
3 $\frac{7}{16}$ "	3-594"			6-835"	FS.2088	4"	4 $\frac{1}{8}$ "			8"	FS.1820
3 $\frac{7}{16}$ "	3 $\frac{9}{16}$ "			7 $\frac{1}{2}$ "	FS.1477	4 $\frac{1}{8}$ "	4 $\frac{1}{4}$ "	4 $\frac{3}{8}$ "	3 $\frac{1}{16}$ "	8-95"	FS.528
3 $\frac{7}{16}$ "	3 $\frac{9}{16}$ "			8 $\frac{3}{32}$ "	FS.1739	4 $\frac{1}{8}$ "	4-345"			8-95"	FS.1457
3 $\frac{7}{16}$ "	3 $\frac{5}{8}$ "			8 $\frac{3}{32}$ "	FS.1437	4 $\frac{1}{8}$ "	4 $\frac{5}{16}$ "			10-562"	FS.1814
3 $\frac{1}{2}$ "	92 $\frac{m}{m}$	95 $\frac{m}{m}$	3 $\frac{m}{m}$	7 $\frac{1}{8}$ "	FS.1120	4 $\frac{1}{4}$ "	4-437"			11-735"	FS.955
3 $\frac{1}{2}$ "	3 $\frac{5}{8}$ "			7 $\frac{15}{16}$ "	FS.1283	4 $\frac{3}{8}$ "	4 $\frac{9}{16}$ "	4 $\frac{19}{32}$ "	3 $\frac{1}{16}$ "	8 $\frac{13}{16}$ "	FS.1278
3 $\frac{1}{2}$ "	3 $\frac{5}{8}$ "			8 $\frac{1}{4}$ "	FS.1787	4 $\frac{3}{8}$ "	4 $\frac{9}{16}$ "			10 $\frac{1}{8}$ "	FS.1639
3-501"	3 $\frac{11}{16}$ "	3 $\frac{23}{32}$ "	3 $\frac{1}{16}$ "	8 $\frac{1}{2}$ "	FS.1135	4 $\frac{1}{2}$ "	4 $\frac{11}{16}$ "	4 $\frac{13}{16}$ "	1 $\frac{1}{4}$ "	10 $\frac{15}{16}$ "	FS.667
3-502"	3 $\frac{3}{4}$ "	3 $\frac{55}{64}$ "	3 $\frac{1}{16}$ "	7 $\frac{29}{32}$ "	FS.1496	4 $\frac{1}{2}$ "	4 $\frac{11}{16}$ "			11 $\frac{1}{4}$ "	FS.1482
90 $\frac{m}{m}$	3 $\frac{11}{16}$ "	3 $\frac{27}{32}$ "	3 $\frac{1}{16}$ "	8 $\frac{1}{16}$ "	FS.1018	4-5015"	4 $\frac{11}{16}$ "	4 $\frac{13}{16}$ "	1 $\frac{1}{4}$ "	11"	FS.1702
90 $\frac{m}{m}$	3 $\frac{13}{16}$ "			8-372"	FS.512	115 $\frac{m}{m}$	4-8125"	5 $\frac{3}{4}$ "	1 $\frac{1}{4}$ "	10-6841"	FS.1610
90 $\frac{m}{m}$	3 $\frac{11}{16}$ "	3 $\frac{13}{16}$ "	1 $\frac{1}{4}$ "	9 $\frac{3}{8}$ "	FS.589	4 $\frac{5}{8}$ "	4 $\frac{15}{16}$ "	5 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	11 $\frac{1}{16}$ "	FS.1245
3 $\frac{9}{16}$ "	3 $\frac{3}{4}$ "			7 $\frac{1}{4}$ "	FS.1328	5 $\frac{1}{2}$ "	5 $\frac{11}{16}$ "			13 $\frac{5}{16}$ "	FS.1445
3 $\frac{9}{16}$ "	3-751"			7 $\frac{3}{4}$ "	FS.1642	5 $\frac{1}{2}$ "	5 $\frac{23}{32}$ "			14 $\frac{3}{8}$ "	FS.1535