


Title:	CORE Liner® Hydraulic Performance US Units	 CORE LINEPIPE
Document and Rev #:	CLP-TB-009r4	
Document Owner:	Applications Engineering	
Revision Date:	09-Apr-2021	


CORE Liner® Hydraulic Performance

I. Flow Velocity and Flow Rate

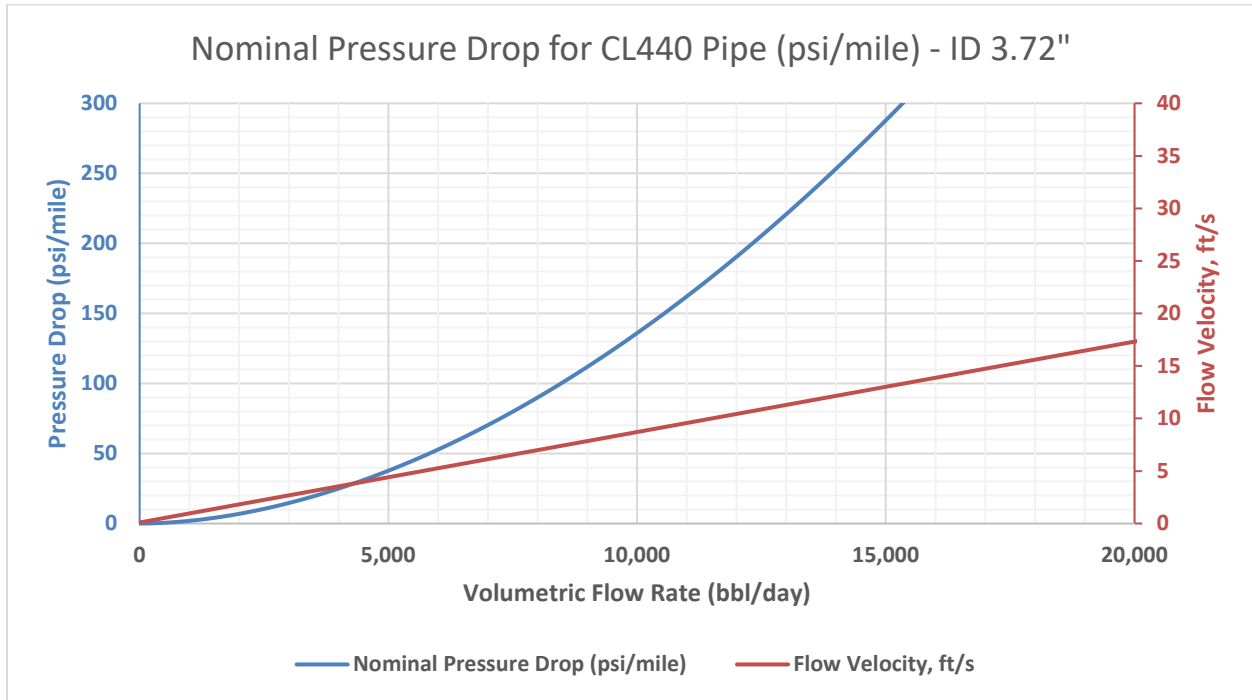
The smooth polyethylene inner layer of CORE Liner® provides excellent flow characteristics with minimal friction loss. The maximum flow velocity and the maximum flow rate for a particular pipeline will depend on the level of friction loss that can be tolerated and on the likelihood and impact of potential water hammer events. Erosion is typically not a limiting factor for flow velocity in polyethylene lined pipelines in liquid service. As a guideline, the industry commonly uses a typical maximum flow velocity of 13 ft/s, resulting in the following flow rates and friction losses in water service:

Product	Max. Flow Rate	Max. Friction loss	Friction loss, psi			
			2	4	8	10
-	bbl/day	psi/mile	miles	miles	miles	miles
CL440	15,000	287	574	1148	2296	-
CL671	34,000	181	362	724	1448	1810
CL648	36,000	176	352	704	1408	1760
CL856 EGS	51,000	143	286	572	1144	1430
CL856	62,000	130	260	520	1040	1300
Twin CL856	124,000	130	260	520	1040	1300
CL1071	96,000	100	200	400	800	1000
CL1279	135,000	81	162	324	648	810

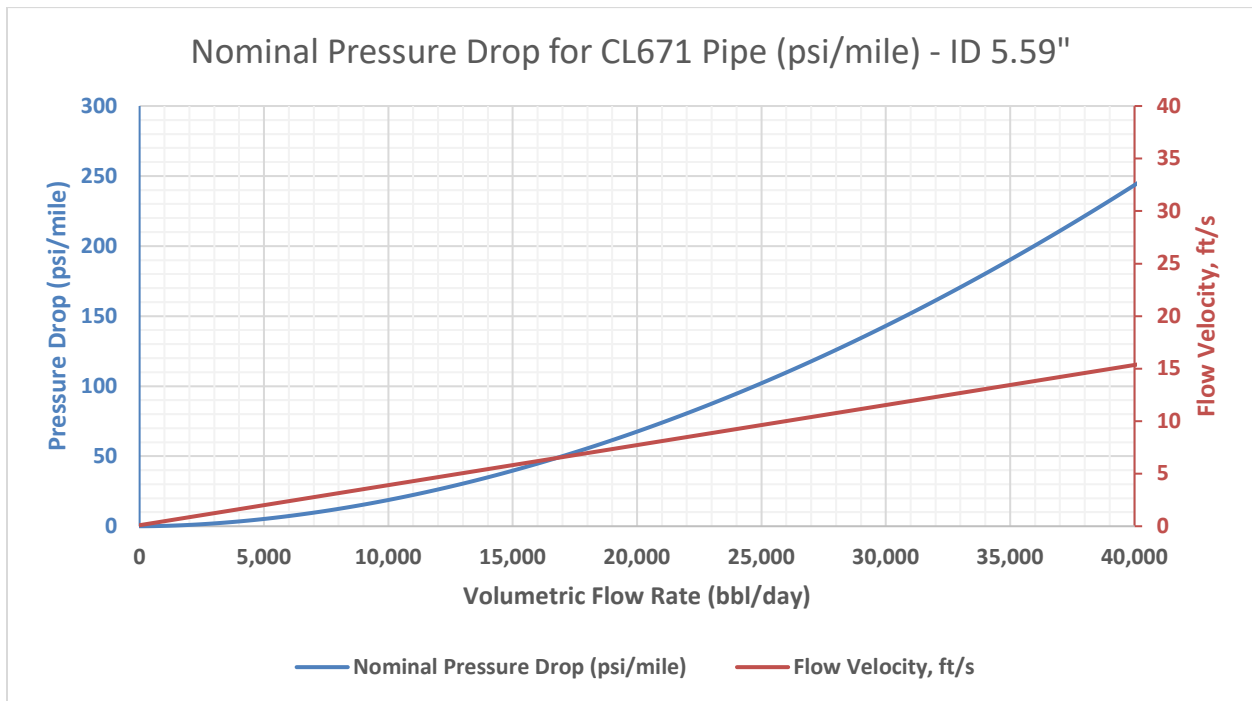
The below charts reflect the expected friction loss in a CORE Liner® pipeline for a variety of flow rates. Currently, the 4", 6" and 8" product sizes are commercially available. The 10" and 12" are under development.


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II. Friction Loss for CL440 CORE Liner® in Water Service

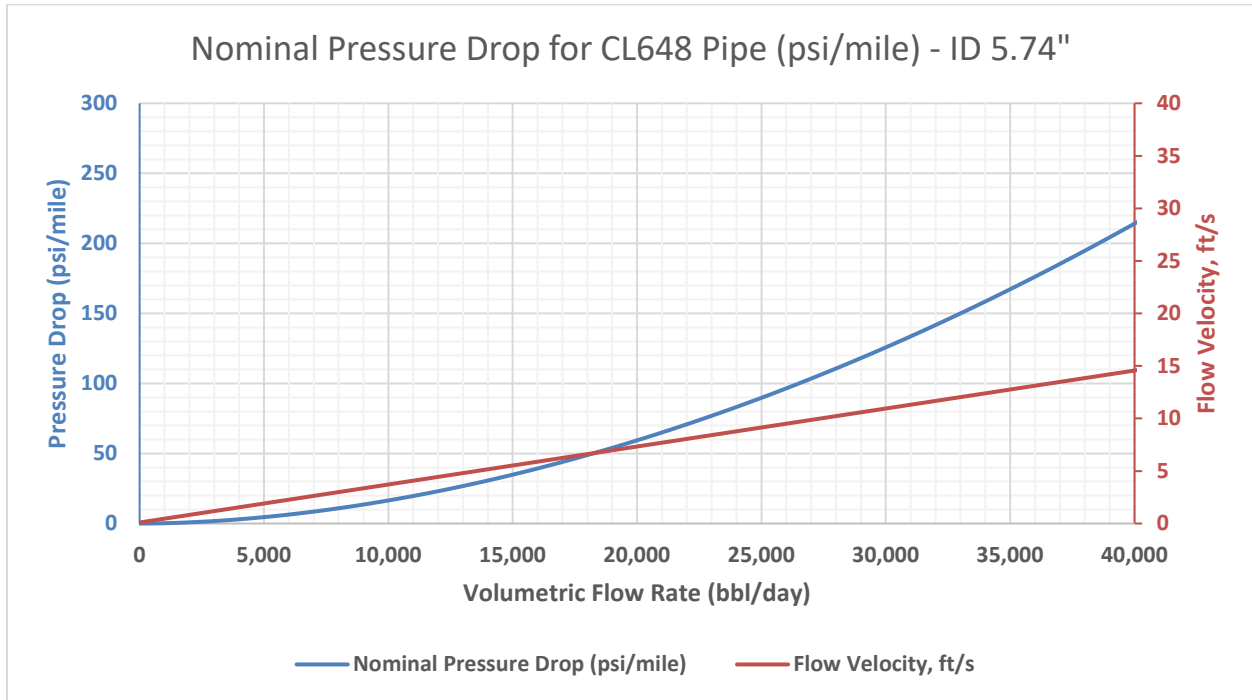


III. Friction Loss for CL671 CORE Liner® in Water Service

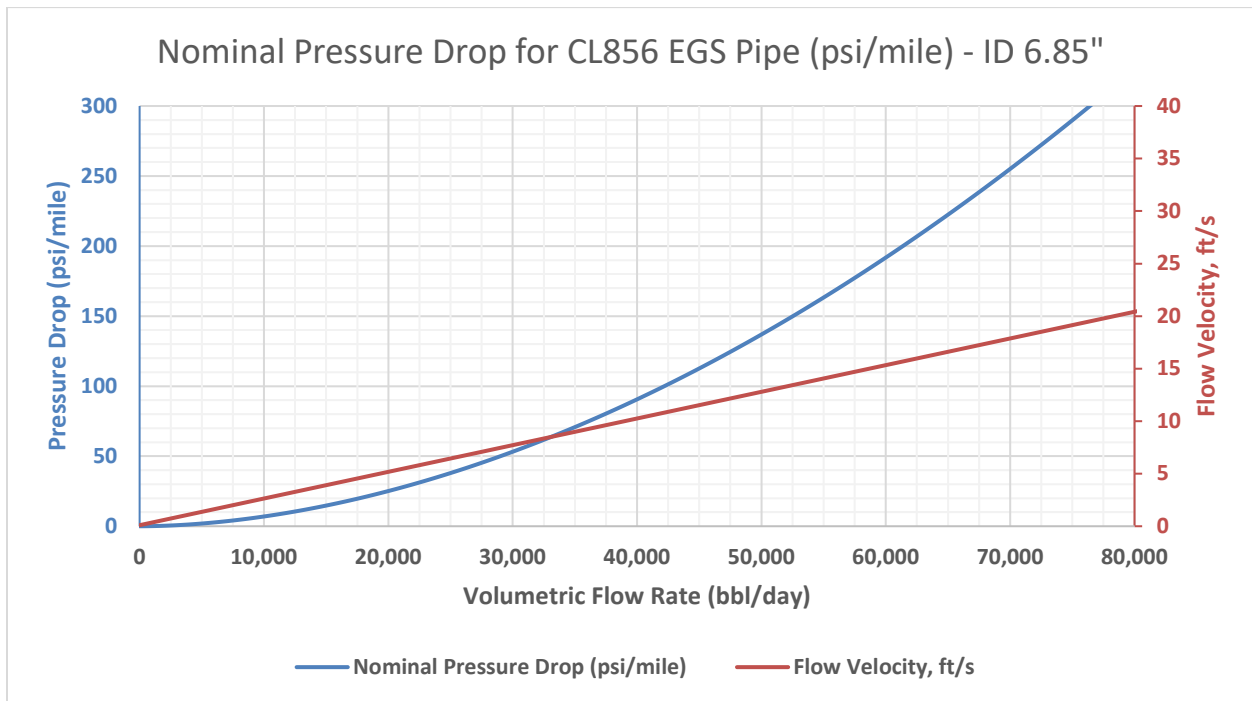



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IV. Friction Loss for CL648 CORE Liner® in Water Service

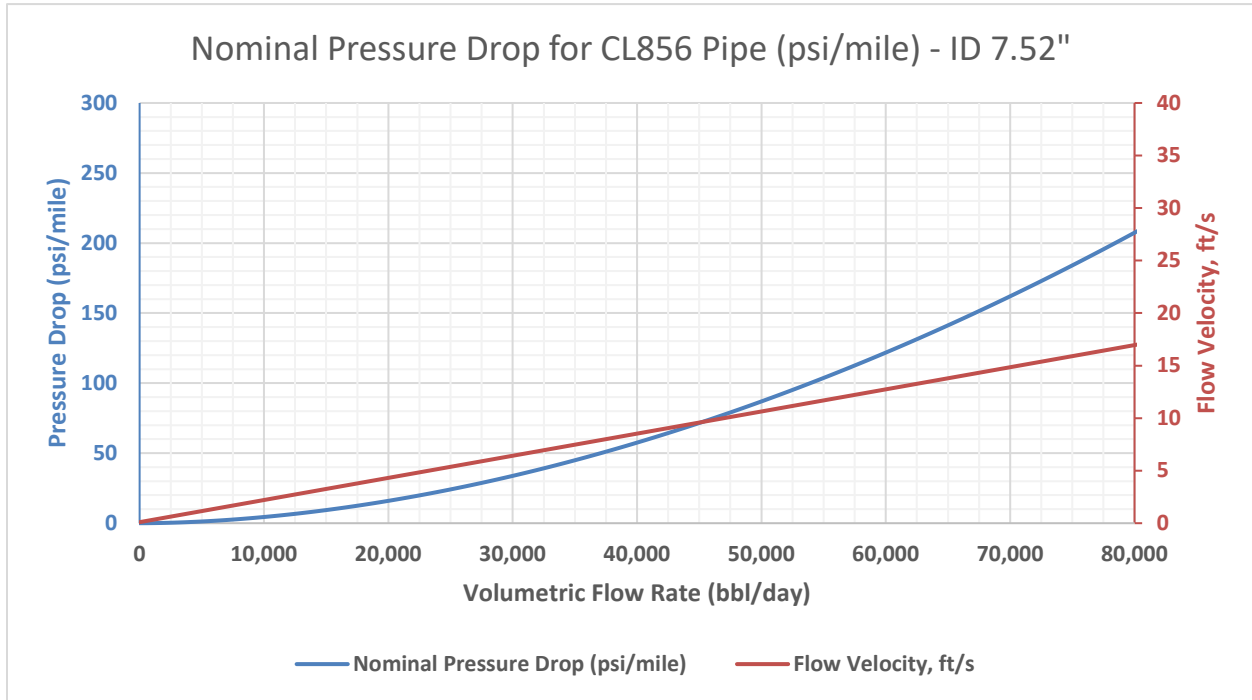


V. Friction Loss for CL856 EGS CORE Liner® in Water Service

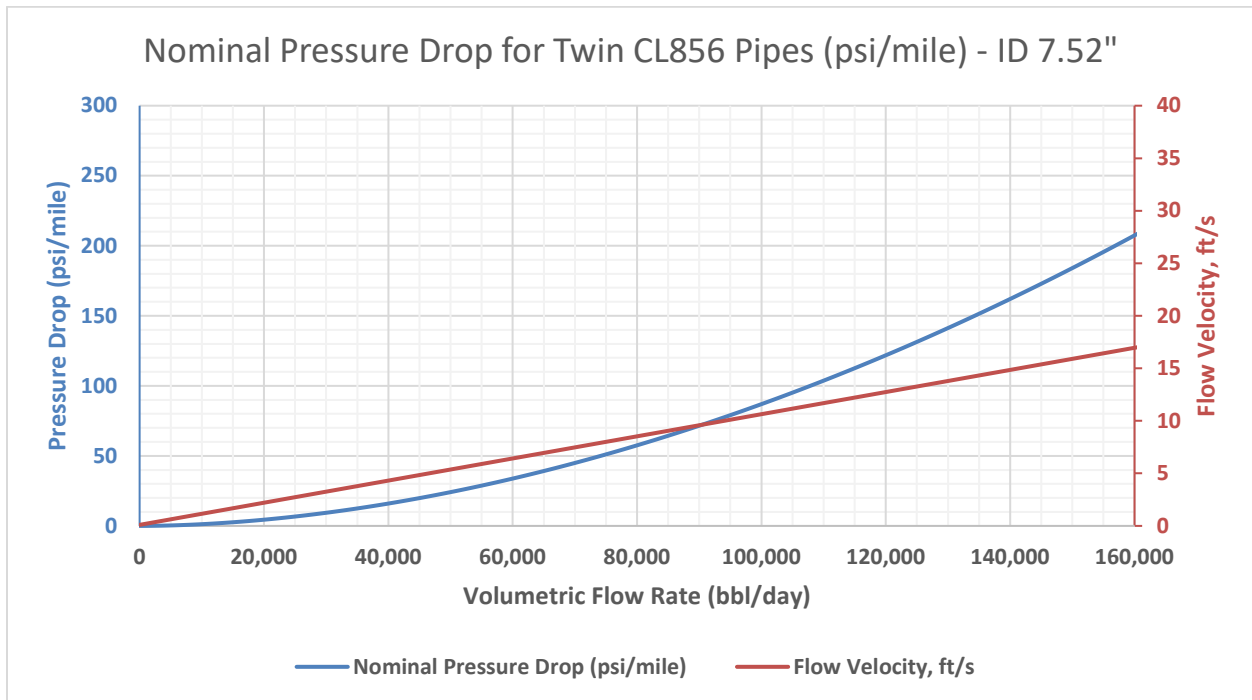



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VI. Friction Loss for CL856 CORE Liner® in Water Service

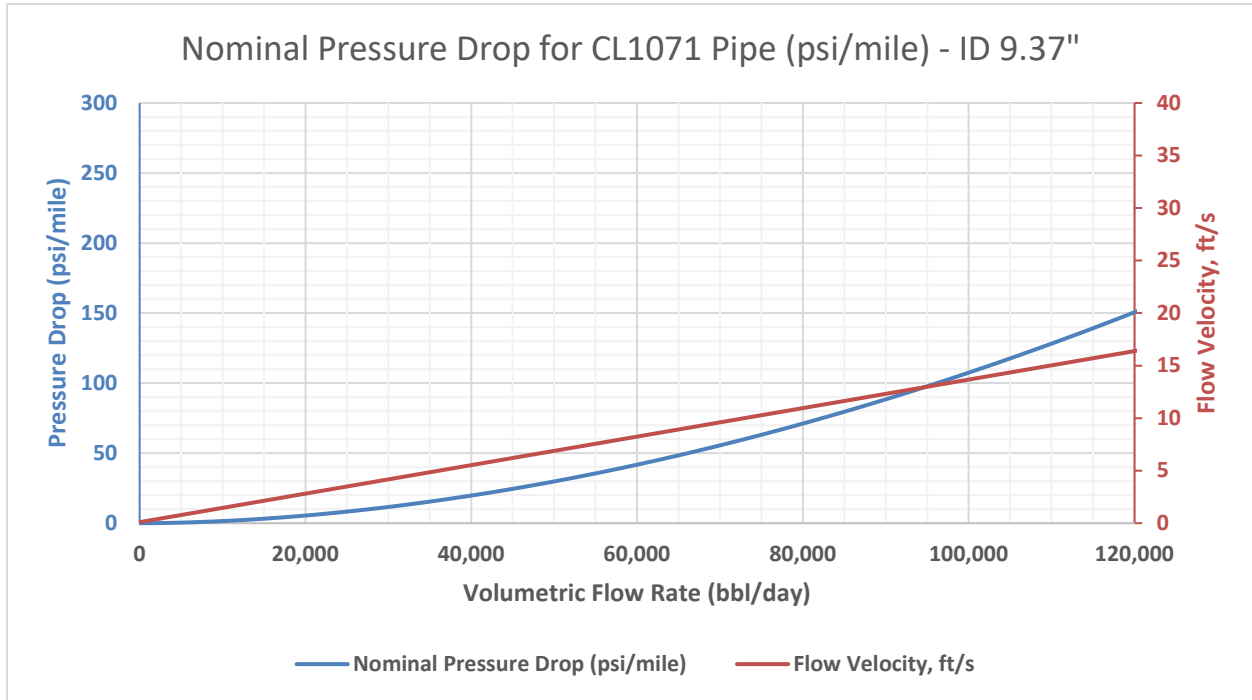


VII. Friction Loss for Twin CL856 CORE Liner® in Water Service

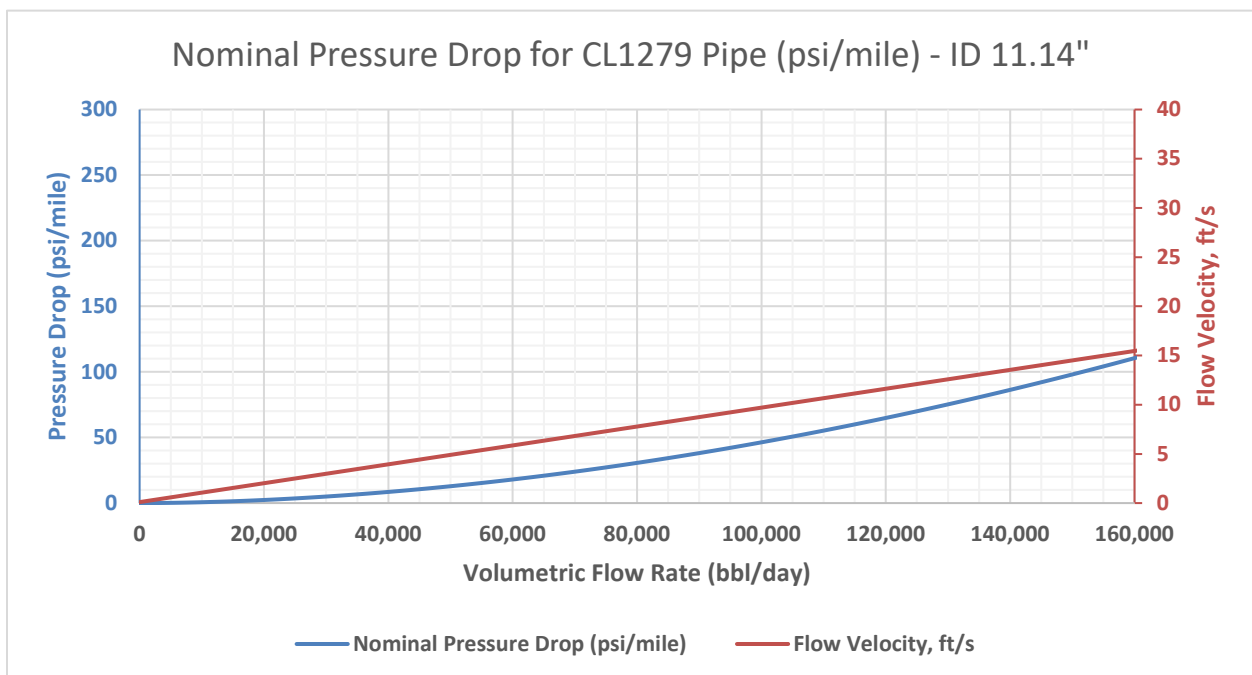



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VIII. Friction Loss for CL1071 CORE Liner® in Water Service



IX. Friction Loss for CL1279 CORE Liner® in Water Service



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X. Flow Coefficients

The smooth HDPE inside liner offers the following flow coefficients:

Hazen-Williams	150
Darcy-Weisbach Surface Roughness	0.000005 ft
Manning	0.009