Converting Linear Flow (cm/hour) to Volumetric Flow Rate (ml/min)

$$\text{Volumetric flow rate (ml/min)} = \frac{\text{Linear flow (cm/h)}}{60} \times \text{Cross sectional area of column (cm}^2\text{)}$$

$$= \frac{Y}{60} \times \frac{\pi \times d^2}{4}$$

Y = linear flow in cm/h
d = column inner diameter in cm

Table for Converting Linear Flow Rates (cm/h) to Volumetric Flow Rates (ml/min) for Columns of Varying Internal Diameters (mm):

Choose the linear flow rate that you are using against the internal diameter of your column to find the equivalent flow rate in ml/min.

For example a WorkBeads™ 40 IEX 8mm pre-packed column (8mm internal diameter) will reach a Linear Flow Rate of 400 cm/h at 3.35 ml/min. The equivalent Linear Flow Rate in a column of 100mm internal diameter would be reached at a Volumetric Flow Rate of 523.33 ml/min.

		Internal Diameter of Column (mm)								
		5.0	8.0	10.0	12.5	16.0	26.0	50.0	100.0	180.0
Linear Flow Rate (cm/h)	10	0.03	0.08	0.13	0.20	0.33	0.88	3.27	13.08	42.39
	50	0.16	0.42	0.65	1.02	1.67	4.42	16.35	65.42	211.95
	100	0.33	0.84	1.31	2.04	3.35	8.84	32.71	130.83	423.90
	150	0.49	1.26	1.96	3.07	5.02	13.27	49.06	196.25	635.85
	200	0.65	1.67	2.62	4.09	6.70	17.69	65.42	261.67	847.80
	250	0.82	2.09	3.27	5.11	8.37	22.11	81.77	327.08	1059.75
	300	0.98	2.51	3.93	6.13	10.05	26.53	98.13	392.50	1271.70
	350	1.14	2.93	4.58	7.15	11.72	30.96	114.48	457.92	1483.65
	400	1.31	3.35	5.23	8.18	13.40	35.38	130.83	523.33	1695.60
	500	1.64	4.19	6.54	10.22	16.75	44.22	163.54	654.17	2119.50
	600	1.96	5.02	7.85	12.27	20.10	53.07	196.25	785.00	2543.40
	700	2.29	5.86	9.16	14.31	23.45	61.91	228.96	915.83	2967.30