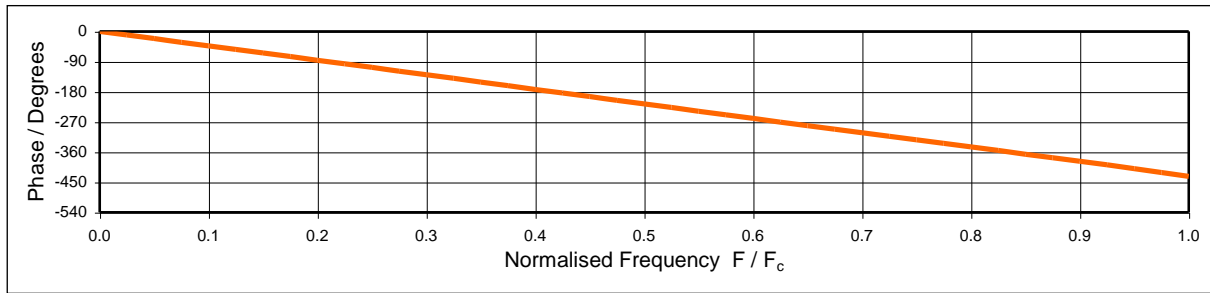## Amplitude Response

Kemo Filter Response 41 is a 8 pole Elliptic type filter. Designed with a flat passband, reasonable roll off, and linear phase. A very good general-purpose filter, and is available on some Kemo systems with switchable high pass response.

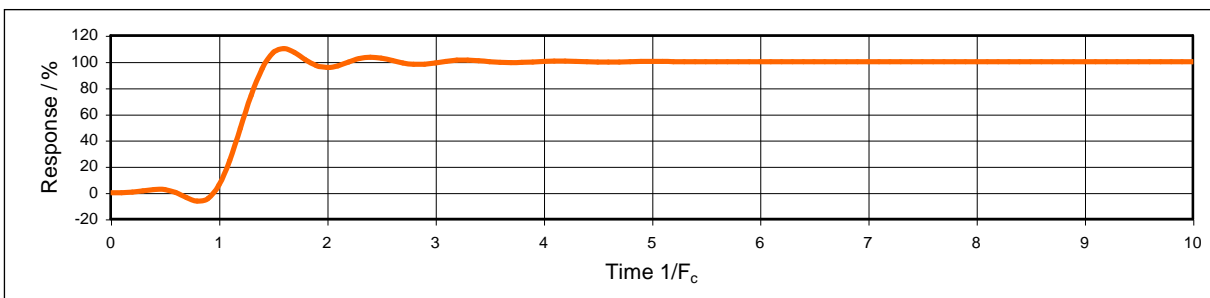| Response 41 Data			
Equivalent Slope	51.8 dB / Octave		
Stopband (theoretical)	> -82 dB		
Overshoot (theoretical)	10.0 % at 1.60 /F_c		
Risetime to 0.996	1.4/F_c		
Mean phase line (theoretical)	-431 f/F_c		
Attenuation / dB	Normalised Frequency F / F_c		Attenuation / dB
0.10	1.041	1.00	0.0
0.25	1.068	1.10	0.6
0.50	1.095	1.25	5.2
1.00	1.128	1.50	17.5
3.00	1.199	1.75	28.4
6.00	1.268	2	38.1
12.00	1.387	3	83.2
24.00	1.644	4	-
36.00	1.945	5	-
48.00	2.274	8	-
60.00	2.593	10	-
80.00	2.985	-	-

Passband Phase Response

The curve above shows the passband phase response of the Kemo response 41 filter.
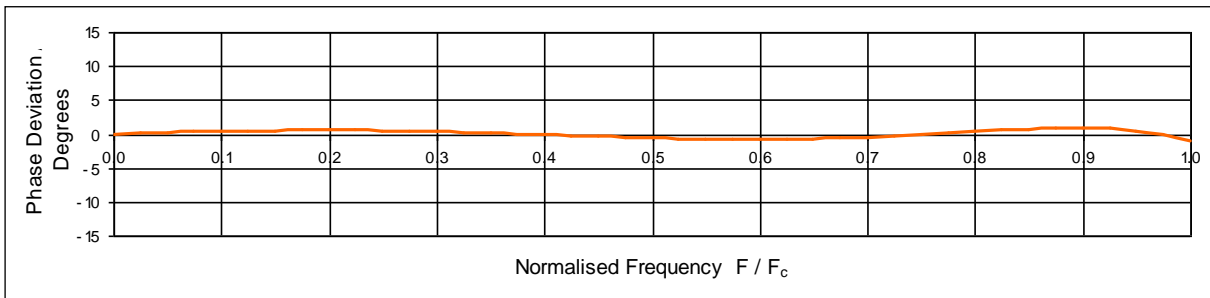
Passband phase deviation

The above curve shows the passband phase variation for the Kemo response 41 filter, this is the difference between the mean phase line and the passband phase response of the filter.

Time Response to Step Input

The curve above shows the time response to a step input to the response 41 filter.

Other Filter Responses

Anti-Aliasing **(01)** – a filter optimised for anti-aliasing protection before sampling and D-A conversion, where analysis is in the frequency domain.

Butterworth **(03) (05)** – traditional Butterworth filters, often used to match existing systems, type 01 is superior for alias protection, and type 41 is a better general-purpose filter.

Bessel **(07) (09)** – traditional Bessel filters, linear phase, and small-time delay with no overshoot, but significant roll off in the passband.

General Notes about Filter Responses

Selecting a filter is a compromise. We have been manufacturing filters since 1965, and this sheet shows our selection of standard responses built up over a number of years to meet most applications. One of the most important aspects of filter selection is to allow for the total effect on the signal, passband amplitude, phase variation, and step response.

Note- F_c is cut-off frequency