

### Amplitude Response

Kemo Filter Response 37 is a 6 pole Elliptic type filter. Designed with a flat passband, reasonable roll off, and good phase performance. A good general purpose filter, and is available on some Kemo systems with switchable high pass response.

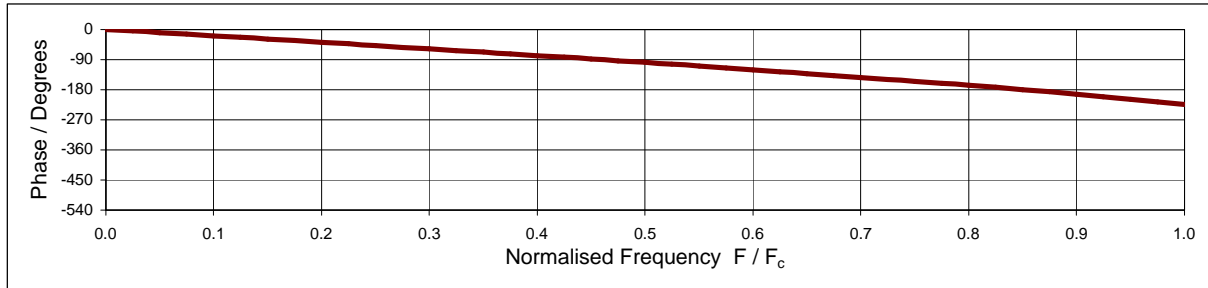
Response 37 Data			
Equivalent Slope		51.8 dB / Octave	
Stopband (theoretical)		> -82 dB	
Overshoot (theoretical)		16.9 % at 1.00 / $F_c$	
Risettime to 0.996		0.8/ $F_c$	
Mean phase line (theoretical)		-206 $f/F_c$	
Attenuation / dB	Normalised Frequency / $F_c$		Attenuation / dB
0.10	1.035	1.00	0.0
0.25	1.070	1.10	0.6
0.50	1.095	1.25	5.2
1.00	1.130	1.50	17.5
3.00	1.195	1.75	28.4
6.00	1.268	2	38.0
12.00	1.387	3	83.2
24.00	1.645	4	88.4
36.00	1.935	5	87.0
48.00	2.274	8	83.0
60.00	2.595	10	85.2
80.00	2.971	-	-

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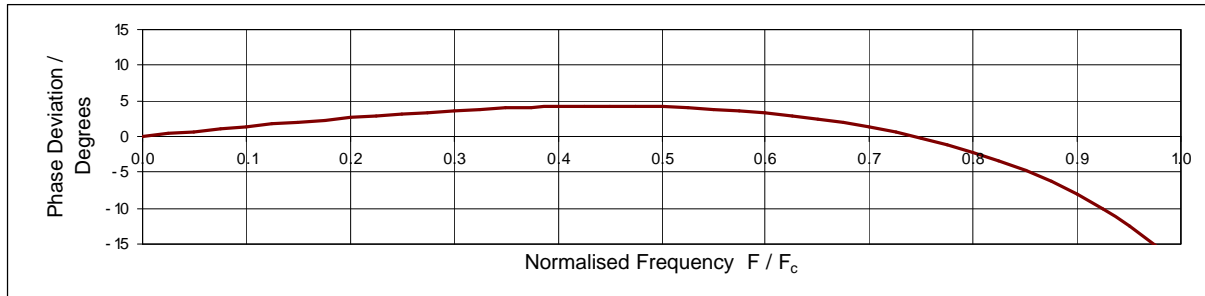
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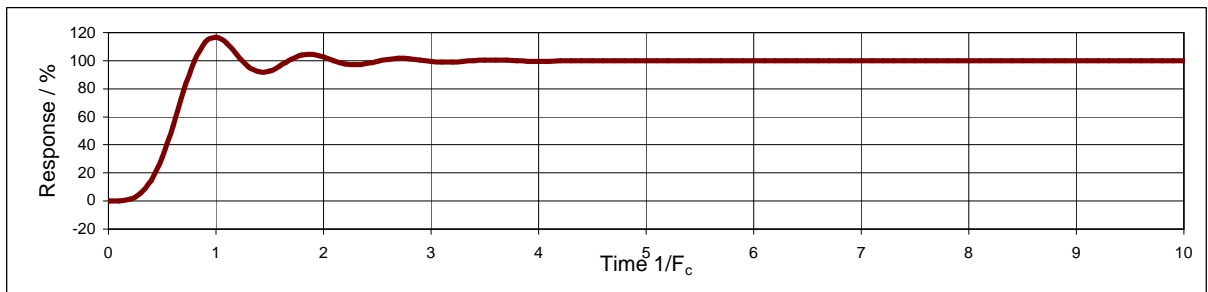
### Passband Phase Response

The curve above shows the phase of response 37 filter in the passband.



### Passband phase deviation

The curve above shows the passband phase variation for the Kemo 37 filter, this is the difference between the mean phase line and the passband phase response.



### Time Response to Step Input

The curve above shows the time response to a step input to the response 37 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.

General Purpose (41) – a filter optimised for low signal distortion. Flat passband and linear phase characteristics, with moderate settling time.

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

Due to continued product development Kemo Limited reserve the right to change specification without notice

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