



Applications

- Post Production, creation of deliverables for domestic and international distribution
- High Definition DVD
- Dubbing & Duplication

Option

FilmTools option for Alchemist Ph.C - HD, adds low frame rate progressive I/O with DEFTplus, P-Film, CleanCut2 and Video-to-Film conversion techniques, and incorporates comprehensive Timecode handling facilities (5045003)

Please note that the FilmTools option is only available on Alchemist Ph.C - HD's fitted with the HD SDI I/O option (5045000)

Other applicable options

- Dolby®E (1 channel) for Alchemist Ph.C - HD, adds Dolby®E Transcoding and decoding (5045002)
- Dolby®E (2 channels) for Alchemist Ph.C - HD, adds Dolby®E Transcoding and decoding (5045012)

Alchemist Ph.C™ - HD FilmTools Option

FilmTools are based on the tried and tested film handling capability of the Alchemist Platinum, providing broadcasters, content owners and facilities with a proven means of converting to, from and between frame-based material with comprehensive integrated Timecode support as standard.

The addition of FilmTools greatly extends the range of supported video standards, providing the Alchemist Ph.C - HD with a unique range of capabilities and adds the all important processing modes necessary to enable you to handle the widest range of workflows possible, all to the best achievable quality.



With FilmTools, Alchemist Ph.C - HD is extended to handle frame-based material at 23.98, 24, 25, 29.97 and 30Hz as well as SlowPAL formats at 23, 24, 47 and 48Hz. This I/O format flexibility is combined with three powerful Ph.C based technologies:-

- **DEFTplus** techniques allow the Alchemist Ph.C - HD to accurately identify and process the original film content in 59.94Hz sources. This robust identification of original material enables the conversion of 59.94Hz mixed film and video originated material, typical of episodics, to be performed at the highest quality.
- **P-film** provides similar benefits to DEFTplus for those operating with 50Hz mixed media sources.
- **Video-to-Film** processing allows the conversion of 50Hz or 59.94Hz interlaced formats to frame-based 23.98Hz video, using a proprietary application of Ph.C motion compensation.

Combining the power of Ph.C, DEFTplus, P-Film and Video-to-Film processing, the FilmTools Option addresses the challenges of converting to, from, and between any of the many frame-based material formats.

FilmTools has been designed with the challenges of real program material in mind:-

- Accurate and agile detection of film originated 2:3 or 2:2 sequences
- Detection and clean processing of film originated 2:3 or 2:2 with broken cadence
- Cleanly handles mixed film and video content
- Agile field pairing ensures Varispeed and animation at variable frame rates are no problem
- Easily maintain program length for any conversion type
- Create clean, continuous 2:3 or 2:2 sequences at the output
- Powerful Timecode tools give guaranteed program start and eliminate costly rejects

FilmTools Applications



RollMap Control Panel



As with all Snell & Wilcox smart infrastructure products, Alchemist Ph.C - HD is self aware and ready for centralized set up and monitoring through the RollCall Network Management System.

Workflow support extended through the development of a range of new processing modes

Many new and innovative modes have been created to give you even more choice when handling your valuable titles. Some robust, tried and tested processing techniques cause the total running time of shows to vary by $\pm 4\%$. On certain programs it would be unthinkable to interfere with the content in this way, especially where preservation of musical properties, like pitch and tempo are concerned. Now, with the new FilmTools package, additional modes have been added to maintain running length when it's important to your project, putting you back in charge.

International Program Import / Export

The need to deal with incompatible video standards is often greatest when buying and selling content across the 50Hz - 60Hz divide. Internationally differing frame rates become all the more challenging with the need to handle content at filmic rates or with animated content. Indeed some programs may have a mixture filmic, video and animated material. Bringing together a suite of specialist Emmy Award winning processes such as Ph.C and DEFT, Alchemist Ph.C - HD with FilmTools ensures your master is an international success story.

Content Interchange

With the plethora of video formats and standards in use today, just within a single city, often the first post production task is to get all elements into a common format.

With the widest choice from the most flexible interchange tool, Alchemist Ph.C - HD with FilmTools is able to get your project on the road to delivery, fast and without compromise.

Deinterlacing

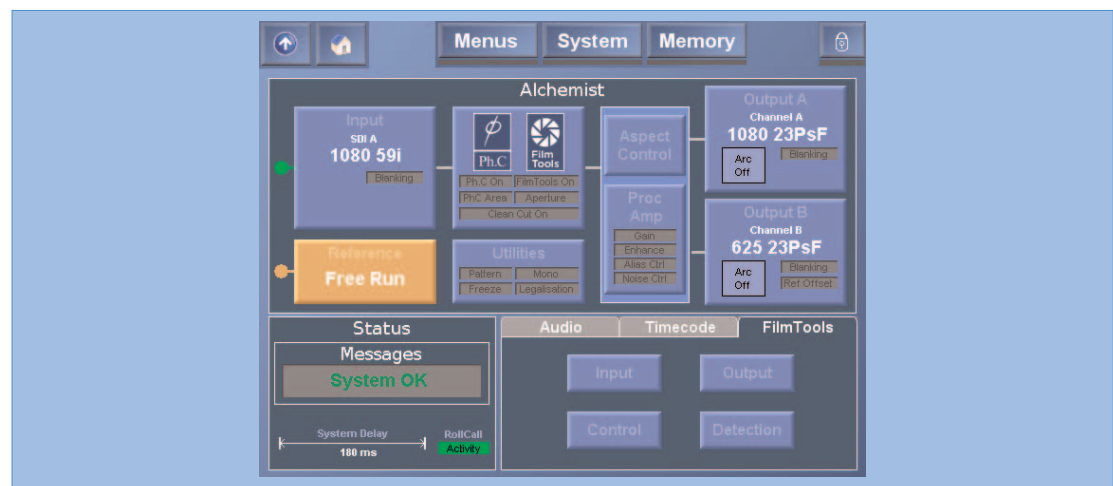
With the move towards electronic production as a replacement for film, program makers the world over are discovering the benefits of progressive video, though in many cases only after they have painstakingly shot their masterpiece. The FilmTools package enables affordable conversion from interlace to progressive video, producing picture quality virtually indistinguishable from the origination format.

Film Deliverables

If your project calls for a physical film copy, the FilmTools package enables you to create your deliverables to the most exacting standards possible. Simply play your project through the Alchemist Ph.C - HD equipped with FilmTools and you'll have a result that can be immediately sent to your Film Recorder.

Filmized Production

Whether you're trying to create an authentic film look to match elements from varying sources, or it's the look of choice for a given show, Alchemist Ph.C - HD armed with the FilmTools option can deliver results with stunning filmic quality quickly and affordably.



Added functionality with the FilmTools option

The following are some additional processing features available only through the FilmTools option

2:3 Insertion

Add 2:3 pulldown when required. For example when creating a 59i master from a 23.98P film title.

2:3 Extraction

Remove 2:3 pulldown when required. For example when taking archived masters to a 23.98P workflow for further editing and post production

Cadence Repair

Many archived master tapes contain broken cadence (2:3 sequence). It is desirable to have a correct and constant cadence as this affects the ability to easily apply further editing and impacts on the efficiency of any downstream digital compression systems.

CleanCut2 Processing

CleanCut processing is unique to the Alchemist Ph.C brand. Now with FilmTools, the robustness and accuracy of CleanCut technology is taken to almost unimaginable perfection.

Timecode Mastering & Conversion

Often a deliverable is required to reside across multiple master elements, for instance, when a movie is too long to fit on a single video cassette. Under such circumstances, it is essential that the timecode be relevant from one element to the next, and that the cadence framing be continuous across an entire title when reassembled from the individual elements.

What is Ph.C?

Ph.C - Phase Correlation operates on a unique and powerfully effective principle. Using frequency domain techniques it provides the most accurate and robust form of motion estimation. Motion compensated conversion using Ph.C motion vectors enables seamless temporal rate conversion such as converting from 1080 59.94i to 1080 50i.

In the application of DEFTplus, Ph.C in addition provides the most comprehensive film sequence, material type and cut detection, essential for controlling the conversion process to provide seamless results.

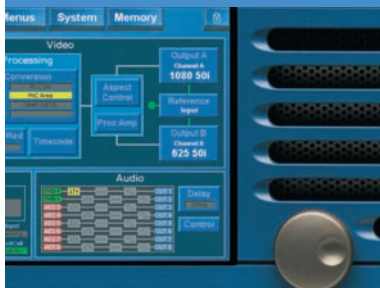
What is DEFT? (Digital Electronic Film Transfer)

Historically DEFT provided an artefact free conversion of NTSC film originated material to PAL for European distribution. In the US, episodic TV is typically shot on film at 24Hz, this is transferred to video via a telecine which repeats the original film frames using a 3:2 sequence to provide a direct mapping to a 59.94Hz NTSC.

The output from the DEFT process is recorded on a specially modified VTR that will record at 23.97Hz, known as "SlowPAL". For broadcast, the tape is replayed at 25Hz.

DEFTplus combines the power of Ph.C with DEFT processing, both Emmy award winning technologies. The combination raises the bar once again to ensure the essential conversion process is carried out without sacrificing precious production values.

The DEFT conversion process takes 3:2 material, detects the sequence, removes the redundant field, one of the "3", it then resizes the image to 625 line.



Adding FilmTools dramatically expands the I/O capabilities of your Alchemist Ph.C - HD, enabling you to handle the widest range of workflows possible, all at the best achievable quality.

		Output Format											
		625PsF23*/24/25	625i47/48**	625i50	525PsF29	525i59	720P50	720P59/60	1080PsF23/24/25	1080PsF29/30	1080i47/48	1080i50	1080i59/60
Input Format	625PsF23*/24/25	F	F	F	F	F	F	F	F	F	F	F	F
	625i47/48**	F	F	F	F	F	F	F	F	F	F	F	F
	625i50	F	F	A	F	A	A	A	F	F	F	A	A
	525PsF29	F	F	F	F	F	F	F	F	F	F	F	F
	525i59	F	F	A	F	A	A	A	F	F	F	A	A
	720P50	F	F	A	F	A	A	A	F	F	F	A	A
	720P59/60	F	F	A	F	A	A	A	F	F	F	A	A
	1080PsF23/24/25	F	F	F	F	F	F	F	F	F	F	F	F
	1080PsF29/30	F	F	F	F	F	F	F	F	F	F	F	F
	1080i47/48	F	F	F	F	F	F	F	F	F	F	F	F
	1080i50	F	F	A	F	A	A	A	F	F	F	A	A
	1080i59/60	F	F	A	F	A	A	A	F	F	F	A	A

* 625(576)/23.98PsF SlowPAL, 625(576)/24PsF SlowPAL

** 625(576)/47.95i SlowPAL, 625(576)/48i SlowPAL

*** 720P23/24/25/29 standard support will not be available in the first release, but will follow shortly after.

The table above identifies those conversions that are supported by the standard HD enabled Alchemist Ph.C - HD with an "A" and those added as a result of the FilmTools option with an "F".

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