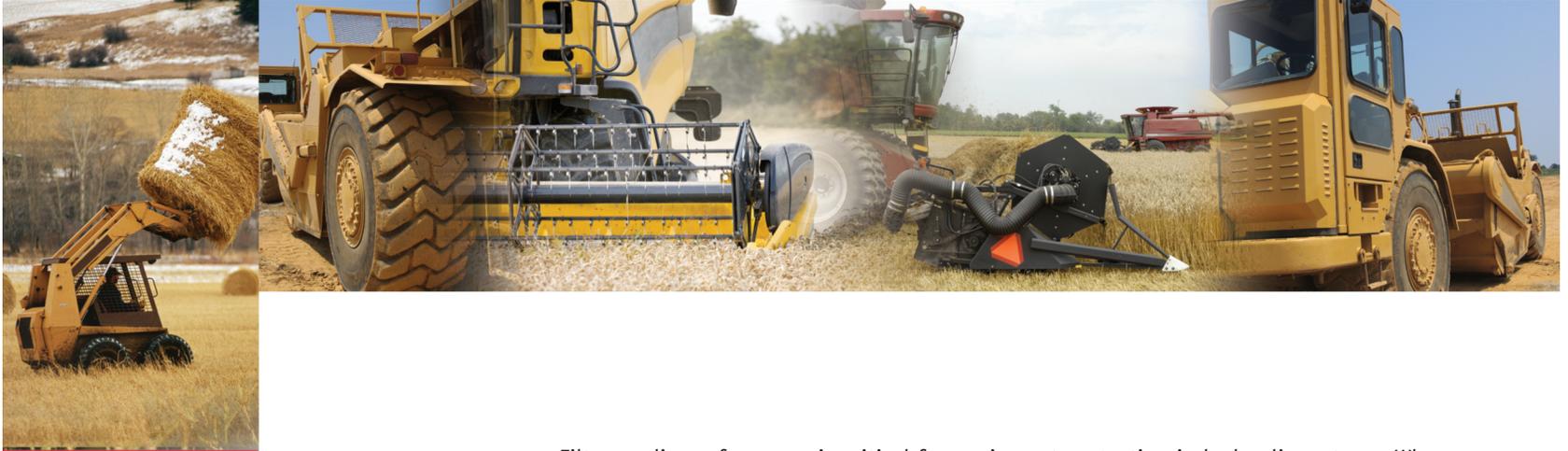




## HYDRAULIC FILTER MEDIA FOR CYCLIC APPLICATIONS



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**H&V has advanced R&D capabilities and diverse process technologies to provide the right media for your demanding application. We understand the stressful environment of hydraulic systems and can provide state-of-the-art media engineered to fit your real-world application.**

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Filter media performance is critical for equipment protection in hydraulic systems. When choosing hydraulic filter media, the performance should be determined using the most relevant testing method. For years a standard multi-pass test (ISO 16889) has been used to qualify elements for hydraulic systems. While this test does provide an accurate measurement of performance in steady-state filtration, most hydraulic operating conditions are cyclic in nature.

**Hydraulic environment.** Filter media in hydraulic systems is often exposed to cyclic flow, cold start-ups, shock, and vibration. These stressful conditions can potentially reduce the filtration effectiveness of an element. The operating environment of hydraulic systems, steady state or cyclic, should be taken into account when choosing the correct filter media.

**Cyclic flow.** The ability to test filter media using the new cyclic flow multipass test procedure is just one of the many capabilities within H&V's research and development laboratory. Based on H&V's cyclic flow testing procedure, the actual service environment of hydraulic filters can be simulated to predict the filter element's true performance under cyclic conditions. Using cyclic flow testing, H&V can more accurately recommend filter media based on the real-world use in hydraulic systems.

**High dust-holding capacity.** In certain hydraulic applications, the filters must last as long as possible without replacement. H&V media grades designed for maximum dust-holding capacity (DHC) significantly increase the life of the filter. Innovative H&V technology enables dual-layer, dual-phase designs providing maximum dust-holding capacity for cyclic filter media.

**Low pressure drop.** H&V's high-efficiency low-pressure drop (HELP) media offers low-pressure drop for any desired efficiency or higher efficiency at comparable pressure drop. HELP media has a very low caliper and offers higher surface area by enabling more pleats in the filter element. Higher surface area provides lower face velocity, lower pressure drop, and ultimately lower energy costs for your customer. H&V can recommend the HELP media grade that is right for your cyclic application.

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& Vose





### Higher Dust Holding Grade Recommendations Based on Cyclic Flow Testing

	HB5211	DC4271	DD2391	DE1741	DE1391	HF0421
Basis weight (#/3000 ft <sup>2</sup> )	37	55	50	65	65	60
Caliper (inches)	0.012	0.022	0.018	0.025	0.025	0.021
Air permeability (ft <sup>2</sup> /min/ft <sup>2</sup> @ 0.5 in WC)	3.7	5.4	12.5	24	30	48
Mean pore size (microns)	NA	3	5.5	10	NA	20
Apparent dust- holding capacity (g/ft <sup>2</sup> )	7	12	18	20	22	18
Beta ratio @ 200 (μm <sub>(c)</sub> )	<4	5	10	15	20	>30

### Lower Pressure Drop Grade Recommendations Based on Cyclic Flow Testing

	1949 K100/ 1359	1849 K100/ 1359	1850 K100/ 1359	1894 K100/ 1359	1746 K100/ 1056/1	1708 K100/ 1056/1
Basis weight (#/3000 ft <sup>2</sup> )	80	82	82	82	82	82
Caliper (inches)	0.029	0.03	0.03	0.03	0.03	0.03
Air permeability (ft <sup>2</sup> /min/ft <sup>2</sup> @ 0.5 in WC)	8.5	12	17.3	28	45	57.6
Mean pore size (microns)	3	6.6	8.5	12	16	22
Apparent dust- holding capacity (g/ft <sup>2</sup> )	6	8	11	15	15	17
Beta ratio @ 200 (μm <sub>(c)</sub> )	4	7	10	15	22	30



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**Cyclic Test Method.** H&V's ability to test filtration media using the cyclic flow of fluid in hydraulic systems is based on a modified version of the ISO 23369, Hydraulic Filter Element Multipass Test Under Cyclic Flow. The method tests a 10.5 inch diameter disk of flat media with flow cycling between 8.5 liters per minute and 2.12 liters per minute. This is equal to a high face velocity of 0.5 feet per minute and a low face velocity of 0.125 feet per minute. The test uses ISO medium test dust at a level of 10 milligrams per liter and the cycle frequency is 0.1 Hertz.

