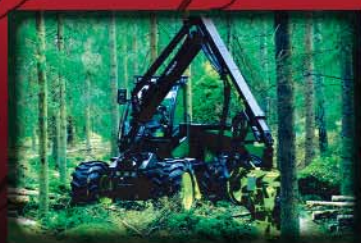
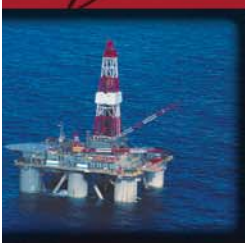
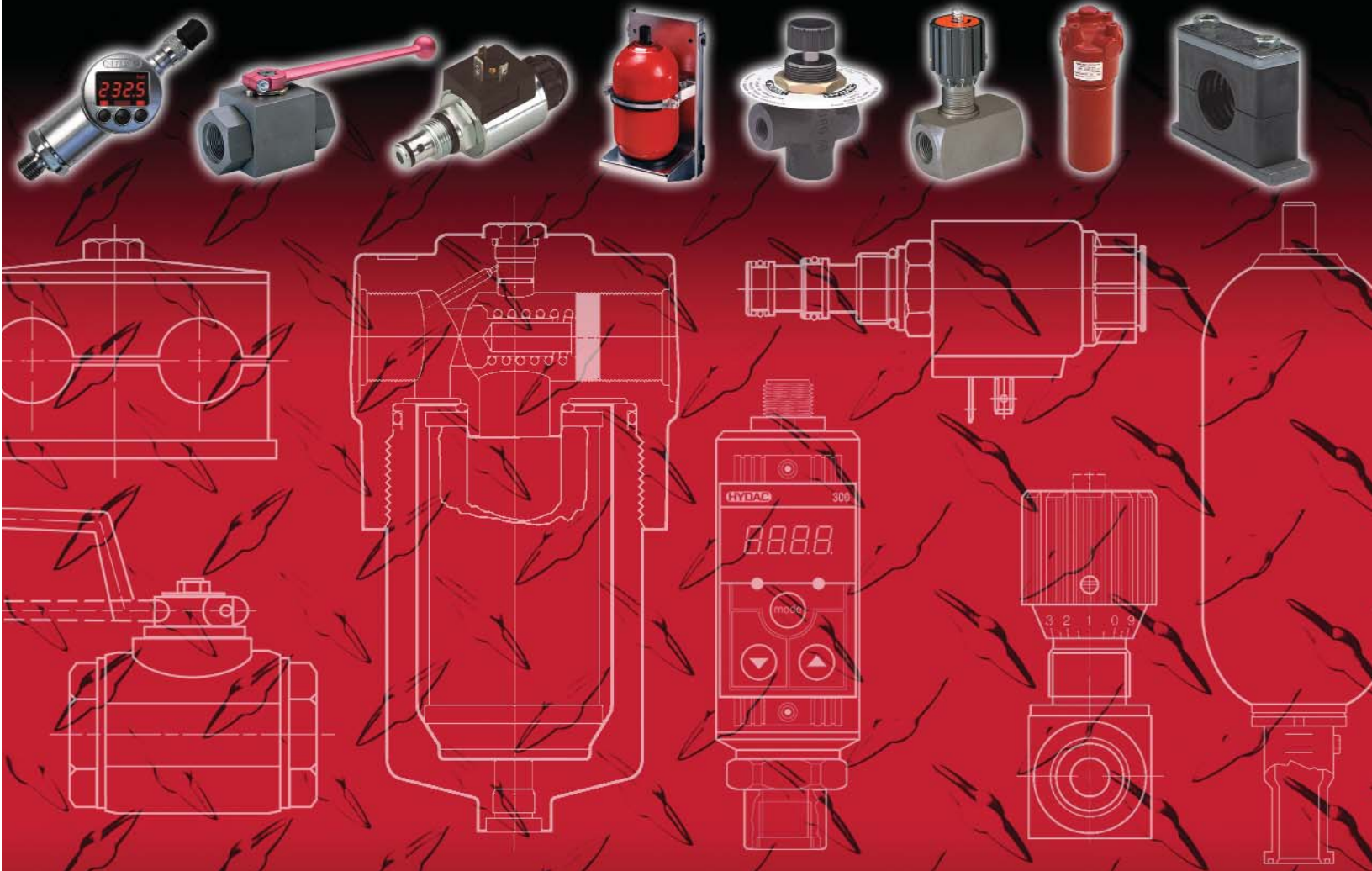


HYDAC INTERNATIONAL

The Single Source for Hydraulic Components

Preferred Stock



www.hydacusa.com

About HYDAC

HYDAC stands for worldwide presence and accessibility to the customer. HYDAC has over 1000 distributors worldwide and more than 40 wholly owned branches. HYDAC has been active in the field of fluid conditioning, controls, and pressure monitoring for more than 40 years. HYDAC has become one of the leaders in innovative products and custom solutions. Our know-how has evolved primarily from solving customers' problems, combined with the extensive experience of the whole HYDAC group.

HYDAC Products



Our complete product range includes filters, accumulators, electronic sensors, valves, clamps, accessories, power units, coolers, and manifold valve assemblies. Our capabilities extend beyond components, to complete engineered sub-systems. The products in this catalog are a merely a handful of the most commonly ordered.



HYDAC Quality



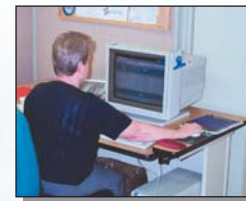
HYDAC stands for quality and customer satisfaction. Our products are designed by highly trained experts, using state of the art equipment. Continuous research and development keep HYDAC poised as a leader in the industry. Along with exceptional design, HYDAC uses the most modern production methods to ensure quality.



HYDAC Customer Service



Our internal staff and worldwide distribution network take care of the important matter of customer service. HYDAC values high standards, professional ethics, and mutual respect in all transactions with customers, vendors, and employees. We invest in our relationships by providing expertise, quality, dependability, and accessibility to foster growth and a sense of partnership. Our customer service representatives are committed to serving the customers' needs.



Energy and Environmental Technology

HYDAC Electronics have played a key role in providing innovative developments in hydroelectric, heating, wind, and waste power plants. HYDAC has vast expertise in solvent and waste water processing technologies.



Offshore Shipbuilding and Marine Technology

Maritime technology places special demands on material functionality and reliability. HYDAC products meet these demands due to our high quality and test standards. HYDAC products have been applied under the toughest conditions from drilling rigs to deep sea applications.



Mobile Market

The aim of our engineers has always been to reduce volume and weight, resulting in increased product performance. HYDAC provides compact high performance components for the Mobile Market, which can be found in construction, forestry, and agricultural equipment.



Industrial Engineering

Since we began, HYDAC has been involved in many industrial engineering applications. Our knowledge and expertise of many industries provides a comprehensive range of versatile hydraulic components. HYDAC offers custom solutions for machine tools, plastic injection molding machines, test equipment, presses, and welding robots. Other industrial applications include: steel and heavy industry, power transmissions, and paper mills.



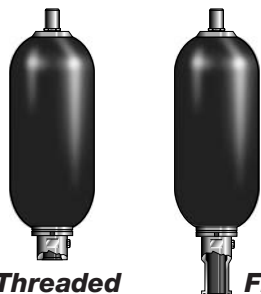
Process Technology

The core products of HYDAC process technology are electronics, filters, and filtration systems for the industrial and environmental processing industries. HYDAC products are found in chemical, petrochemical, and plastics industries. Also, paper and dye production, foundries, steel manufacturing, and power plants.

Accumulator	
Bladder Accumulators	1
Safety & Shut-Off Blocks	1
Mounting Components for Bladder Accumulators	2
Diaphragm Accumulators	3
Mounting Components for Diaphragm Accumulators	3
Charging & Gauging Unit for Accumulators	3
Filters	
Low Pressure In-tank	4
Medium Pressure Inline	5
High Pressure Inline	6
Spin-ons	7
Replacement Elements	8
Clogging Indicators	11
Offline Filtration Units	12
Portable Carts & Hand-held Units	14
Fluid Analysis Kits	15
Electronics	
Portable Data Recorder	16
Pressure Switches	17
Pressure Transducers	18
Clamps	
DIN 3015 Hose, Tube, & Pipe Clamps	19
Ball Valves	
2-way Ball Valves	21
3-way Diverter Ball Valves	22
Flow Control Valves	
Needle Valves	23
Flow Control Valves	23
Check Valves	24
Pressure Compensated Flow Control Valves	24
Reservoir Accessories	
Breathers & Filler Breathers	25
Drymicron Breathers	25
Fluid Level Indicators	26
Single Station Gauge Isolators	26
TestPoints	27
Micro-Bore Flexible Hoses	27
Compact Hydraulics	
Cartridge Valves	28
General Information	
General Terms and Conditions of Sale	30
HYDAC Limited Warranty and Limitation of Liability	30



Bladder Accumulators - Bottom Repairable



Threaded

Flanged

Features:

- Bladder type accumulator
- HYDAC gas valve version 4
- Carbon Steel Shell and Fluid Port
- NBR (Buna N) Bladder and seals
- Operating temperature range +5° F to +180° F (-15° to +82° C)
- Designed for installation in the USA.

NOTE: Accumulators are shipped from the factory without gas precharge.

Threaded Line Connection [SAE (ANSI B1.1)]

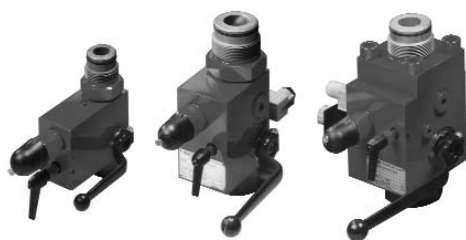
Size	Model Code	Fluid Port Thread	Part Number	Repair Kit
1 Quart	SB330-1A1/112 S-210C	1 1/16" - 12 UN	02054003	02054034
1 Gallon	SB330-4A1/112 S-210C	1 5/8" - 12 UN	02054004	02054035
1.5 Gallon	SB330-6A1/112 S-210C	1 5/8" - 12 UN	02054676	02054677
2.5 Gallon	SB330-10A1/112 S-210C	1 7/8" - 12 UN	02054005	02054036
5 Gallon	SB330-20A1/112 S-210C	1 7/8" - 12 UN	02054006	02054037
10 Gallon	SB330-32A1/112 S-210C	1 7/8" - 12 UN	02054007	02054038
15 Gallon	SB330-54A1/112 S-210C	1 7/8" - 12 UN	02054008	02054039

Flanged Line Connection [SAE Code 61]

Size	Model Code	Fluid Port Flange	Part Number	Repair Kit
2.5 Gallon	SB330-10F1/112 S-210E	2" Code 61 SAE	02054439	02054036
5 Gallon	SB330-20F1/112 S-210E	2" Code 61 SAE	02054440	02054037
10 Gallon	SB330-32F1/112 S-210E	2" Code 61 SAE	02054260	02054038
15 Gallon	SB330-54F1/112 S-210E	2" Code 61 SAE	02054430	02054039

To obtain more detailed information on these and other models, please refer to the HYDAC Accumulators Catalog.

Safety & Shut-Off Blocks



Features:

- Carbon steel block
- Viton seals

Size 20

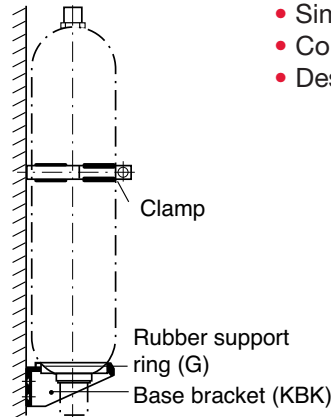
Connection*	Model Code	Bleed Valve	Relief Valve	Part Number
1 1/16"-12UN	SAF20M16-N350C-S60	Manual	4600 PSI	02076241
1 5/8"-12UN	SAF20M16-N350C-S62	Manual	4600 PSI	02076243
1 7/8"-12UN	SAF20M16-N350C-S63	Manual	4600 PSI	02076245

Size 32

Connection*	Model Code	Bleed Valve	Relief Valve	Part Number
SAE 2" Code 61 (3000 PSI)	SAF32M16-N250E	Manual	2900 PSI	02076289

*When Selecting a Safety & Shut-Off Block, be sure that the connection matches the fluid side connection of the accumulator to be used. For more information see the HYDAC Accumulators Catalog.

Mounting Components - Bladder Accumulators



Features:

- Simply and safely mounts accumulator
- Counteracts the forces exerted by hydraulic lines
- Designed for easy bolt-on installation

Bladder Accumulator Clamps

For Accumulator Type*	Clamp Model Code	Quantity	Part Number
SB330-1... (1 Quart, 3000 psi)	HyRac 73-76 ST	1	00445038
SB330-1... (1 Quart, 3000 psi)	HyRac 89-92 ST	1	00445039
SB330-1... (1 Quart, 3000 psi)	HyRac 100-105 ST	1	00444904
SB330-1... (1 Quart, 3000 psi)	HyRac 121-129 ST	1	03059450
SB330-1... (1 Quart, 3000 psi)	HyRac 133-142 ST	1	03059449
SB330-1... (1 Quart, 3000 psi)	HyRac 110-118 ST	1	03059446
SB330-4... (1 Gallon, 3000 psi)	HS 167	1	02110642
SB330-6... (1.5 Gallons, 3000 psi)	HS 167	1	02110642
SB330-10... (2.5 Gallons, 3000 psi)	HSS 222/229	1	00235224
SB330-20... (5 Gallons, 3000 psi)	HSS 222/229	1	00235224
SB330-32... (10 Gallons, 3000 psi)	HSS 222/229	2	00235224
SB330-54... (15 Gallons, 3000 psi)	HSS 222/229	2	00235224

Bladder Accumulator Base Brackets

For Accumulator Size*	Clamp Model Code	Quantity	Part Number
SB...-1... (1 Quart)	Not Applicable	0	—
SB...-4... (1 Gallon)	KBK 167/G	1	02107989
SB...-6... (1.5 Gallons)	KBK 167/G	1	02107989
SB...-10... (2.5 Gallons)	KBK 222/G	1	02100651
SB...-20... (5 Gallons)	KBK 222/G	1	02100651
SB...-32... (10 Gallons)	KBK 222/G	1	02100651
SB...-54... (15 Gallons)	KBK 222/G	1	02100651

*When Selecting Mounting Components, be sure that the corresponding clamps and base bracket match the correct accumulator sizes. For more information on accumulator mounting components, please refer to the HYDAC Accumulators Catalog.

Diaphragm Accumulators



Features:

- Diaphragm type accumulator
- HYDAC gas valve version 4
- Carbon Steel Shell and Fluid Port
- NBR (Buna N) diaphragm
- Maximum Allowable Working Pressure - 3000 psi
- Operating temperature range 5° to 180° F (-15° to +82° C)
- Designed for installation in the USA.

NOTE: Accumulators are shipped from the factory without gas precharge.

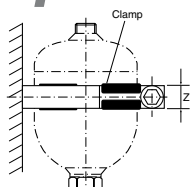
Welded Construction

Size	Model Code	Fluid Port Thread	Part Number
10 in3	SBO-210-0.16E4/112S-210CK	9/16"-18 UNF	00378188
20 in3	SBO-210-0.32E4/112S-210CK	3/4"-16 UNF	00377316
30 in3	SBO-210-0.5E4/112S-210CK	3/4"-16 UNF	02108692
45 in3	SBO-210-0.75E4/112S-210CK	3/4"-16 UNF	00378190
60 in3	SBO-200-1E4/112S-210CK	3/4"-16 UNF	00378191

Repairable Accumulators with a threaded construction are also available.

For more information see the HYDAC Accumulators Catalog.

Mounting Components - Diaphragm Accumulators



Features:

- Simply and safely mounts accumulator
- Counteracts the forces exerted by hydraulic lines
- designed for easy bolt-on installation

Diaphragm Accumulator Clamps

For Accumulator Type*	Clamp Model Code	Quantity	Part Number
SBO 210-0.16... (10 in3, 3000 psi)	HyRac 73-76 ST	1	00445038
SBO 210-0.32... (20 in3, 3000 psi)	HyRac 89-92 ST	1	00445039
SBO 210-0.5... (30 in3, 3000 psi)	HyRac 100-105 ST	1	00444904
SBO 210-0.75... (45 in3, 3000 psi)	HyRac 121-129 ST	1	03059450
SBO 210-1... (60 in3, 3000 psi)	HyRac 133-142 ST	1	03059449

*When Selecting Mounting Components, be sure that the corresponding clamps match the correct accumulator sizes.

For more information on accumulator mounting components, please refer to the HYDAC Accumulators Catalog.

Charging & Gauging Unit



Features:

- Charging Head
- 0 to 3600 psi Gauge
- 8' Hose
- Nitrogen Cylinder Adapter
- Plastic Case

Charging & Gauging Unit

Model Code	For Accumulator Type	Part Number
FPS 250 F2.5-G4-K	Bottom repairable bladder & E4 style diaphragm accumulators	02054186

For more information see the HYDAC Accumulators Catalog.

RF Series In-Line / In-Tank Return Line Filters



Features:

- Low Collapse (250 PSID) 10 µm Betamicon® Elements - Absolute Filtration ($B_{10(c)} \geq 1000$)
- Bypass Valve - Cracking Pressure = 43 PSID (3 bar)
- Housing Designed for in-tank or in-line use
- Indicator Trip point set to 29 PSID (2 bar)
- Maximum Allowable Working Pressure - 360 PSI

RF Filter Assemblies

Model Code	Port Size	Indicator Type	Flow Rate*	Part No.
RF BN/HC 160 DE10 B1.1/12	SAE 20	Visual (auto reset)	40 gpm	02072176
RF BN/HC 330 DE10 B1.0/12	SAE 20	Visual (auto reset)	80 gpm	02061978
RF BN/HC 660 DN10 B1.0/16	3" SAE Flange	Visual (auto reset)	160 gpm	02057309
RF BN/HC 1300 DP10 B1.0/16	4" SAE Flange	Visual (auto reset)	300 gpm	02063348

Betamicon® Replacement Elements

Model Code	For Filter Part No.	Micron Rating	Part No.
0160 R 010 BN3HC	02072176	10	02059099
0330 R 010 BN3HC	02065198	10	02055592
0660 R 010 BN3HC	02057309	10	02059105
1300 R 010 BN3HC	02063348	10	02059111

RFM Series In-Tank Return Line Filters



Features:

- Low Collapse (250 PSID) 10 µm Betamicon® Elements - Absolute Filtration ($B_{10(c)} \geq 1000$)
- Bypass Valve - Cracking Pressure = 43 PSID (3 bar)
- Lightweight Design - Aluminum head and plastic bowl
- Indicator Trip point set to 29 PSID (2 bar)
- Pressure Rating - 145 PSI

RFM Filter Assemblies

Model Code	Port Size	Indicator Type	Flow Rate*	Part No.
RFM BN/HC 75 BD10 E1.0/12T	SAE-16	pressure gauge	15	02062931
RFM BN/HC 165 BD10 E1.0/12T	SAE-16	pressure gauge	25	02062919
RFM BN/HC 330 BF10 E1.0/12	SAE-24	pressure gauge	60	02066882

Betamicon® Replacement Elements

Model Code	For Filter Part No.	Micron Rating	Part No.
0075 R 010 BN3HC	02062931	10	02069160
0165 R 010 BN3HC	02062919	10	02060486
0330 R 010 BN3HC	02066882	10	02055592

*Flow rates are based upon standard hydraulic oil with a viscosity of 141 SSU and a specific gravity of 0.86. For other fluid types, and significant temperature variations please consult factory.

For more detailed information on these filters and other options, please refer to the HYDAC Hydraulic & Lube Oil Filters catalog.

LF Series In-Line Medium Pressure Filters



Features:

- Low Collapse (250 PSID) 10 µm Betamicon® Elements - Absolute Filtration ($B_{10(c)} \geq 1000$)
- Bypass Valve - Cracking Pressure = 87 PSID (6 bar)
- Lightweight aluminum head and bowl
- Indicator Trip point set to 72 PSID (5 bar)
- Maximum Allowable Working Pressure rating - 1500 PSI

Filter Assemblies

Model Code	Port Size	Indicator Type	Flow Rate*	Part No.
LF BN/HC 60 G10 B1.0/12B6	SAE 12	Visual (auto reset)	14 gpm	02071842
LF BN/HC 110 G10 B1.0/12B6	SAE 12	Visual (auto reset)	20 gpm	02069190
LF BN/HC 160 IE10 B1.0/12B6	SAE 20	Visual (auto reset)	45 gpm	02066904
LF BN/HC 330 IF10 BM1.0/12B6	SAE 24	Visual (manual reset)	87 gpm	02061274

Betamicon® Replacement Elements

Model Code	For Filter Part No.	Micron Rating	Collapse	Part No.
0060 D 010 BN3HC	02071842	10	250 psi	02055904
0110 D 010 BN3HC	02061137	10	250 psi	02055908
0160 D 010 BN3HC	02071576	10	250 psi	02055752
0330 D 010 BN3HC	02061129	10	250 psi	02055738

LPF Series In-Line Medium Pressure Filters



Features:

- Low Collapse (250 PSID) 10 µm Betamicon® Elements - Absolute Filtration ($B_{10(c)} \geq 1000$)
- Bypass Valve - Cracking Pressure = 87 PSID (6 bar)
- Indicator Trip point set to 72 PSID (5 bar)
- Maximum Allowable Working Pressure (M.A.W.P.) - see chart
- Medium & Low Pressure Applications

Filter Assemblies

Model Code	Port Size	Indicator Type	M.A.W.P.	Flow Rate*	Part No.
LPF BN/HC 160 GG10 B1.0/12B6	SAE-20	visual (auto reset)	725 PSI	38 gpm	02070836
LPF BN/HC 240 GG10 B1.0/12B6	SAE 20	Visual (auto reset)	725 PSI	50 gpm	02071410
LPF BN/HC 280 GG10 B1.0/12B6	SAE 20	Visual (auto reset)	725 PSI	70 gpm	02074032
LPF BN/HC 660 G10 BM1.0/12B6	SAE 24	Visual (manual reset)	1000 PSI	125 gpm	02064708

Betamicon® Replacement Elements

Model Code	For Filter Part No.	Micron Rating	Part No.
0060 D 010 BN3HC	02071842	10	02055904
0110 D 010 BN3HC	02069190	10	02055908
0160 D 010 BN3HC	02061283/02070836	10	02055752
0240 D 010 BN3HC	02071410	10	02055756
0280 D 010 BN3HC	02074032	10	02055760
0330 D 010 BN3HC	02061274	10	02055738
0660 D 010 BN3HC	02064708	10	02055747

*Flow rates are based upon standard hydraulic oil with a viscosity of 141 SSU and a specific gravity of 0.86.
For other fluid types, please consult factory.

For more detailed information on these filters and other options, please refer to the HYDAC Hydraulic & Lube Oil Filters catalog.

DF Series In-Line High Pressure Filters



Features:

- Low Collapse (250PSID) 10 µm Betamicon® Elements - Absolute Filtration ($B_{10(c)} \geq 1000$)
- Bypass Valve - Cracking Pressure = 87 PSID (6 bar)
- Ductile iron head and cold formed steel bowl
- Indicator Trip point set to 72 PSID (5 bar)
- Maximum Allowable Working Pressure rating - 6000 PSI

Filter Assemblies

Model Code	Port Size	Indicator Type	Flow Rate*	Part No.
DF BN/HC 110 G 10 BM1.1/12 B6	SAE 12	Visual (manual reset)	29 gpm	02061137
DF BN/HC 160 G 10 B1.1/12B6	SAE 20	Visual (auto reset)	42 gpm	02071576
DF BN/HC 240 G 10 BM1.1/12B6	SAE 20	Visual (manual reset)	63 gpm	02061071
DF BN/HC 330 G 10 BM1.1/12B6	SAE 24	Visual (manual reset)	87 gpm	02061129
DF BN/HC 660 G 10 BM1.1/12B6	SAE 24	Visual (manual reset)	174 gpm	02061132

Betamicon® Replacement Elements

Model Code	For Filter Part No.	Micron Rating	Collapse	Part No.
0110 D 010 BN3HC	02061137	10	250 psi	02055908
0160 D 010 BN3HC	02071576	10	250 psi	02055752
0240 D 010 BN3HC	02061071	10	250 psi	02055756
0330 D 010 BN3HC	02061129	10	250 psi	02055738
0660 D 010 BN3HC	02061132	10	250 psi	02055747

*Flow rates are based upon standard hydraulic oil with a viscosity of 141 SSU and a specific gravity of 0.86. For other fluid types, please consult factory.

For more detailed information on these filters and other options, please refer to the HYDAC Hydraulic & Lube Oil Filters catalog.

MFM Series In-Line Pressure Filters



Features:

- Low Collapse (360 PSID) 10 µm Betamicon Elements - Absolute Filtration ($B_{10(c)} \geq 1000$)
- Bypass Valve - Cracking Pressure = 100 PSID (7 bar)
- Indicator Trip point set to 72 PSID (5 bar)
- Pressure rating - 4000 PSI

Filter Assemblies

Model Code	Port Size	Indicator Type	Flow Rate*	Part No.
MFMBN/HC75OI5A4-0/B7	SAE-12	no	20	02081346
MFMBN/HC75OI10A4-0/B7	SAE-12	no	25	02080400

Betamicon® Replacement Elements

Model Code	For Filter Part No.	Micron Rating	Part No.
0075D005BN3HC	02081346	5	02075371
0075D010BN3HC	02080400	10	02070802

Notes:

*Flow rates are based upon standard hydraulic oil with a viscosity of 141 SSU and a specific gravity of 0.86. For other fluid types, please consult factory. For more detailed information on these filters and other options, please refer to the HYDAC Hydraulic & Lube Oil Filters catalog.

MF Series Spin-On Filters



Features:

- 10 µm Absolute Betamicon® Elements
- Bypass Valve - Cracking Pressure = 43 PSID (absolute) & 25 PSID (nominal)
- Pressure rating - 120 PSI (MF...90 is 250 PSI)

Filter Assemblies

Model Code	Ports	Indicator Type	Flow Rate*	Part No.
MF BN 80G10E 1.0/5.2 B3	3/4" NPT	Pressure Gauge	15 gpm	02071914
MF BN 80G10E 1.1/12.2 B3.4	SAE-12	Pressure Gauge	15 gpm	02071174
MF P 80G10A 1.0/5.2	3/4" NPT	No Indicator	15 gpm	02061375
MF BN 90G10B 1.0/5.2 B3.4	3/4" NPT	Visual (auto reset)	15 gpm	02063444
MF BN 90G10B 1.0/12.2 B3.4	SAE-12	Visual (auto reset)	15 gpm	02066715
MF BN 160G10E 1.0/12.2 B3	SAE-20	Pressure Gauge	30 gpm	02062795
MF P 160G10A 1.0/5.2	1 1/4" NPT	No Indicator	30 gpm	02061377
MF BN 180G10E 1.0/12.2 B3	SAE-20	Pressure Gauge	60 gpm	02062671

*Flow rates are based upon clean element pressure drop of 2 to 5 PSI using standard hydraulic oil with a viscosity of 141 SSU and a specific gravity of 0.86. For other fluid types, please consult factory.

For more detailed information on these filters and other options, please refer to the HYDAC Hydraulic & Lube Oil Filters catalog.

Betamicon® Replacement Elements

Model Code	For Filter Part No.	Micron Rating	Part No.
0080MA010BN	02071914, 02071174	10	02059424
0080MA010P	02061375	10, nominal	02058058
0090MA010BN	02063444, 02066715	10	02059428
0160MA010BN	02062795	10	02059436
0160MA010P	02061377	10, nominal	02058116
0180MA010BN	02062671	10	02059440

High Pressure Betamicron® Elements



Features:

- High Beta Efficiencies - $B_{x(c)} \geq 1000$
- High Beta stability over element life
- High durability & consistent performance in systems with extreme fluid dynamics
- High Dirt holding capacities
- Compatible with all major hydraulic fluids

Low Collapse

Model Code	For Filter Size	Collapse Rating	Micron Rating	Part No.
0030D010BN3HC	30	250 PSID	10	02055898
0030D020BN3HC	30	250 PSID	20	02056543
0060D010BN3HC	60	250 PSID	10	02055904
0075D005BN3HC	75	250 PSID	5	02075371
0110D010BN3HC	110	250 PSID	10	02055908
0110D020BN3HC	110	250 PSID	20	02055909
0160D010BN3HC	160	250 PSID	10	02055752
0160D020BN3HC	160	250 PSID	20	02055753
0240D003BN3HC	240	250 PSID	3	02055754
0240D005BN3HC	240	250 PSID	5	02055755
0240D010BN3HC	240	250 PSID	10	02055756
0240D020BN3HC	240	250 PSID	20	02055757
0280D010BN3HC	280	250 PSID	10	02055760
0330D010BN3HC	330	250 PSID	10	02055738
0330D020BN3HC	330	250 PSID	20	02055739
0660D010BN3HC	660	250 PSID	10	02055747
0660D020BN3HC	660	250 PSID	20	02055748

For more detailed information on these filters and other options, please refer to the HYDAC Hydraulic & Lube Oil Filters catalog.

High Pressure Betamicron® Elements (cont.)



High Collapse

Model Code	For Filter Size	Collapse Rating	Micron Rating	Part No.
0030D010BH3HC	30	3000 PSID	10	02056690
0060D003BH3HC	60	3000 PSID	3	02055958
0060D010BH3HC	60	3000 PSID	10	02055960
0110D003BH3HC	110	3000 PSID	3	02055973
0110D010BH3HC	110	3000 PSID	10	02055975
0160D003BH3HC	160	3000 PSID	3	02055984
0160D010BH3HC	160	3000 PSID	10	02055986
0240D003BH3HC	240	3000 PSID	3	02055988
0240D010BH3HC	240	3000 PSID	10	02055990
0280D003BH3HC	280	3000 PSID	3	02056396
0280D010BH3HC	280	3000 PSID	10	02056398
0330D010BH3HC	330	3000 PSID	10	02056439
0660D010BH3HC	660	3000 PSID	10	02056418

For more detailed information on these filters and other options, please refer to the HYDAC Hydraulic & Lube Oil Filters catalog.

Low Pressure Betamicron® Elements



Features:

- High Beta Efficiencies - $B_{x(c)} \geq 1000$
- High Beta stability over element life
- High durability & consistent performance in systems with extreme fluid dynamics
- High Dirt holding capacities
- Compatible with all major hydraulic fluids

Return Line Filter Elements

Model Code	For Filter Size	Collapse Rating	Micron Rating	Part No.
0030R010BN3HC	30	250 PSID	10	02065208
0060R010BN3HC	60	250 PSID	10	02059093
0075R010BN3HC	75	250 PSID	10	02069160
0110R010BN3HC	110	250 PSID	10	02059096
0110R020BN3HC	110	250 PSID	20	02059097
0160R010BN3HC	160	250 PSID	10	02059099
0160R020BN3HC	160	250 PSID	20	02059100
0165R010BN3HC	165	250 PSID	10	02060486
0165R020BN3HC	165	250 PSID	20	02060487
0240R010BN3HC	240	250 PSID	10	02059102
0240R020BN3HC	240	250 PSID	20	02059103
0330R010BN3HC	330	250 PSID	10	02055592
0330R020BN3HC	330	250 PSID	20	02055595
0500R010BN3HC	500	250 PSID	10	02066202
0500R020BN3HC	500	250 PSID	20	02066373
0660R010BN3HC	660	250 PSID	10	02059105
0660R020BN3HC	660	250 PSID	20	02059106
0850R010BN3HC	850	250 PSID	10	02060547
0950R010BN3HC	950	250 PSID	10	02059108
1300R003BN3HC	1300	250 PSID	3	02057041
1300R005BN3HC	1300	250 PSID	5	02059110
1300R010BN3HC	1300	250 PSID	10	02059111
1300R020BN3HC	1300	250 PSID	20	02059112
2600R003BN3HC	2600	250 PSID	03	02060479
2600R005BN3HC	2600	250 PSID	05	02060480
2600R010BN3HC	2600	250 PSID	10	02060481
2600R020BN3HC	2600	250 PSID	20	02060482

For more detailed information on these filters and other options, please refer to the HYDAC Hydraulic & Lube Oil Filters catalog.

Betamicron® Spin-on Elements



Features:

- High Beta Efficiencies - $B_{x(c)} \geq 200$
- High Beta stability over element life
- High Dirt holding capacities

Model Code	For Filter Size	Micron Rating	Part No.
0080MA010BN	80	10	02059424
0080MA020BN	80	20	02059425
0090MA010BN	90	10	02059428
0090MA020BN	90	20	02059429
0160MA010BN	160/190	10	02059436
0160MA020BN	160/190	20	02059437
0180MA010BN	180/195	10	02059440
0180MA020BN	180/195	20	02059441

Clogging Indicators



VMF2E.0

VD5C.0

VM5C.0

Model Code	Description	Part No.
VM5C.0	Electric Switch	00306849
VD5C.0	Electric Switch	00306839
VMF2E.0	Gauge	00303854

For more detailed information on these filters and other options, please refer to the HYDAC Hydraulic & Lube Oil Filters catalog.

OLF Series Offline Filtration Units



Features:

- 230/460 VAC 3 phase motor with vane pump
- SAE port connection adapters
- Pressure rating - 87 PSI
- NBR Seals
- Static Pressure Gauge Clogging Indicator

Flow Rate*	Model Code	DHC grams	Motor	Pump	Part No.
5 gpm	OLF-15/15-S-O60-N15DM002-E/12 ¹⁾	500	230/460VAC 3 Phase	Vane	02074818
10 gpm	OLF-30/30-S-O60-N15DM002-E/12 ¹⁾	1000	230/460VAC 3 Phase	Vane	02074819
20 gpm	OLF-60/60-S-O60-N15DM002-E/12 ¹⁾	2000	230/460VAC 3 Phase	Vane	02074821

*Flow rates are based upon standard hydraulic oil with a viscosity of 141 SSU and a specific gravity of 0.86.

**Connection sizes are BSPP if supplied SAE adapters are not used.

1) Alternate element micron ratings may be available.

For other fluid types, or for more detailed information on these filters and other options, please consult factory or refer to the Fluid Service Products Catalog.

Replacement Elements for Offline Filters



Model Code	For Filter Size	Micron Rating	Media Type	Part No.
N15DM002	OLF 15, 30, 60*	2	Dimicron®	01251590
N15DM020	OLF 15, 30, 60*	20	Dimicron®	00349576

*15 = 1 element
30 = 2 elements
60 = 4 elements

OLF Series Compact Offline Filtration Units



Features:

- 460 VAC three phase motor with vane pump
- Dimicron® 2µm elements
- SAE port connection adapters
- Pressure rating - 45 PSI
- NBR Seals
- Housing Drain

Flow Rate*	Model Code	Connection Size**	Indicator Type	Part No.
5 gpm	OLF-5/15-S-370-N-N5DM002-BM/12	1 5/16-12UN (SAE 16)[G1 ISO 228]	Visual (<i>manual reset</i>)	02072083

*Flow rates are based upon standard hydraulic oil with a viscosity of 141 SSU and a specific gravity of 0.86.

**Connection sizes are BSPP if supplied adapters are not used.

For other fluid types, or for more detailed information on these filters and other options, please consult factory or refer to the Fluid Service Products Catalog.

Replacement Elements for Compact Offline Filters



Model Code	For Filter Size	Micron Rating	Media Type	Part No.
N5DM002	OLF5 & OLF5/15 ¹⁾	2	Dimicron®	00349494

1) Alternate element micron ratings may be available.

OF7 Series Hand-held Filtration Units



Features:

- Hoses with wands on inlet & outlet
- 110 VAC, 60 Hz motor with vane pump
- Betamicon Spin-on element
- Pressure rating - 50 PSI
- NBR Seals

Model Code	Stages	Gauge Type	Flow Rate*	Part No.
OF7 S 10 P 1 K 1 B10 E ¹⁾	1	Static	4.5 gpm	02055628

*Flow rates are based upon standard hydraulic oil with a viscosity of 141 SSU and a specific gravity of 0.86.

1) Alternate element micron ratings may be available.

For other fluid types, or for more detailed information on these filters and other options, please consult factory or refer to the Fluid Service Products Catalog.

OF5 Series Portable Filter Carts



Features:

- Self-priming direct drive vane pump
- Betamicon and/or Aquamicon spin-on elements
- Pressure rating - 87 PSI
- 10' clear PVC (spiral-reinforced) hoses with 20" wands
- 520 µm cleanable strainer on inlet wand
- 110 VAC, 60 Hz motor

Model Code	Stages	Gauge Type	Flow Rate**	Part No.
OF5-10-10BN-10A-S ¹⁾	1	Static	10 gpm	02076076

**Flow rates are based upon standard hydraulic oil with a viscosity of 141 SSU and a specific gravity of 0.86. For other fluid types, or for more detailed information on these filters and other options, please consult factory or refer to the Fluid Service Products Catalog.

1) Alternate element micron ratings may be available.



Replacement Elements for Portable Filtration Units

Fits Filter	Model Code	Micron	Media Type	Part No.
OF5	0180MA010BN	10	Betamicon®	02059440
OF5	0180MA010A	10 & water removal	Aquamicon®	02061732
OF7	0160MA010BN	10	Betamicon®	02059436

Fluid Analysis Kits



Features:

Program:

- Measures fluid cleanliness of their hydraulic system
- Determines the need for better filtration to improve fluid cleanliness
- Monitor fluid cleanliness on a regular basis as part of a complete hydraulic maintenance program

Complete Analytical Report:

- Particle count
- Wear metals spectrum
- Additive content
- ISO code

Benefits:

- Extended equipment life
- Precision operation
- Lower maintenance cost

Includes

Program:

- All costs of analysis (10 samples)
- 10 Sample bottle mailing kits
- 10 Report sheets
- Computerized data storage
- No-charge telephone consultation on severe fluid contamination problems

Description	Model Code	Part No.
10-Sample Kit plus analysis	Wear Check Carton	02700532

HMG 3000 Series Portable Data Recorder



Features:

- 10 input channels: 8 analog inputs, 2 digital inputs
- Automatic sensor recognition (*HSI - HYDAC Self Identification*) or standard transducers
- Inputs for analogue signals: 4 to 20 mA, 0 to 20 mA, 0 to 10 V, 0 to 50 V, -10 to 10 V,
- Inputs for frequency measurements
- User-friendly menu settings, 10 digit keypad for number and text inputs (*equivalent to cell phone operation*)
- Measuring rates of 0.5 ms for all analog channels, and 0.1 ms for channels A and B only, for measurement of pressure spikes
- Large 3.5" graphic color display
- Memory of 64 MB for at least 50 curves with up to 500,000 values each
- PC connection via USB interface (*using HMGWIN software*)
- Serial interface for older PC's and communication with other sensors
- Available for purchase as a single unit, or in a choice of two kits - Deluxe or Standard.

Deluxe HMG 3000 Kit #1 (SI): Part #02084114

Item	Description	Quantity	Part No.
HMG 3000 Unit	HMG 3000-000-E Includes: • HMG 3000-000 with Manual • Battery Set and Charging Unit • HMGWIN sftwr incl. USB cable	1	00909437
Pressure Transducer with HSI	HDA 4748-H-0400-000 (bar)	2	00909427
	HDA 4748-H-0600-000 (bar)	1	00909428
Temperature Transducer with HSI	ETS 4548-H-000	1	00909298
Accessories	ZBE 30-02 (cable for M12x1) 2M	7	06040851
	Direct Gauge Adapter	4	06003824
	Case (for HMG 3000 & accessories)	1	06042959

Standard HMG 3000 Kit #1: Part #02084115

Item	Description	Quantity	Part No.
HMG 3000 Unit	HMG 3000-000-E Includes: • HMG 3000-000 with Manual • Battery Set and Charging Unit • HMGWIN sftwr incl. USB cable	1	00909437
Pressure Transducer	HDA 4475-A-6000-000	2	00907021
	HDA 4475-A-9000-000	1	00907022
Temperature Transducer	ETS 7246-A-000	1	00908120
Accessories	ZBE 30-02 (cable for M12x1) 2M	4	06040851
	ZBE 35 (adaptor M12/Hirschmann)	3	03236601
	SAE 6 F to G 1/4" M Adapter	3	02701429
	Direct Gauge Adapter	4	06003824
	Case (for HMG 3000 & accessories)	1	06042959

For more detailed information on these kits and other options, please refer to the HYDAC Electronics Catalog.

EDS 3000 Series Pressure Switch



Features:

All switches listed have the following technical data.

- Overload Pressure: 200% Full Scale
- Burst Pressure: 300% Full Scale
- Accuracy: (display, analogue output) $\leq \pm 0.5\%$ Full Scale max.
- Repeatability: $\leq \pm 0.5\%$ Full Scale max.
- Temperature Drift - zero point max: $\leq \pm 0.017\% / ^\circ\text{F}$ ($\leq \pm 0.03\% / ^\circ\text{C}$)
- range max: $\leq \pm 0.017\% / ^\circ\text{F}$ ($\leq \pm 0.03\% / ^\circ\text{C}$)
- Analogue Output: 4 to 20 mA, ohmic resistance $\leq 500 \Omega$
0 to 10 V, ohmic resistance $\leq 1\text{K} \Omega$
- Type: PNP transistor output
- Switching Current: min. 1.2 A
- Switching Cycles: ≥ 100 million
- Reaction Time: < 10 ms
- Nominal Temperature Range: -13° to 185°F (-25° to 85°C)
- Ambient Temperature Range: -13° to 176°F (-25° to 80°C)
- CE mark: EN 50081-1 and -2, EN 50082-1 and -2
- Vibration Resistance: approx. 10 g / 10 to 500 Hz
- Shock Resistance: approx. 50 g / ms
- Supply Voltage: 18 to 32 VDC
- Electrical Connection: M12x1 (4 pin or 5 pin)
- Hydraulic Connection: 1/4" - 18 NPT male thread
SAE 6 male thread
- Parts In Contact with Medium: Stainless Steel, FPM seal (type 4)
Brass, Ceramic, FPM seal (types 1 & 3)
- Display: 4 digit, 7-segment LED, Red

Model Code	Output	Pressure Range	Part No.
EDS 3386-2-0250-400	2 switching outputs	0 to 250 PSI	00908406
EDS 3476-2-1000-400	2 switching outputs	0 to 1000 PSI	00908498
EDS 3476-2-3000-400	2 switching outputs	0 to 3000 PSI	00908500
EDS 3476-2-6000-400	2 switching outputs	0 to 6000 PSI	00908501
EDS 3388-5-0250-400	2 switching outputs/1 analog	0 to 250 PSI	00908630
EDS 3478-5-1000-400	2 switching outputs/1 analog	0 to 1000 PSI	00908499
EDS 3478-5-3000-400	2 switching outputs/1 analog	0 to 3000 PSI	00908428
EDS 3478-5-6000-400	2 switching outputs/1 analog	0 to 6000 PSI	00908404

For more detailed information on these switches and other options, please refer to the HYDAC Electronics Catalog.

HDA 4000 Series Pressure Transducers



Features:

All transducers listed have the following technical data.

- Overload Pressure: 150% Full Scale maximal 13000 PSI
- Burst Pressure: 300% Full Scale
- Accuracy: (Best Fit Straight Line) $\leq \pm 0.5\%$ Full Scale
(includes linearity, hysteresis, and repeatability)
- Temperature Compensation Zero Point: $\leq \pm 0.0085\%$ / °F ($\leq \pm 0.015\%$ / °C) typ.
 $\leq \pm 0.014\%$ / °F ($\leq \pm 0.025\%$ / °C) max.
- Temperature Compensation Over Range: $\leq \pm 0.0085\%$ / °F ($\leq \pm 0.015\%$ / °C) typ.
 $\leq \pm 0.014\%$ / °F ($\leq \pm 0.025\%$ / °C) max.
- Reaction Time: approx. 1 ms
- Long-term Drift: $\leq 0.3\%$ Full Scale typ. / year
- Temperature Range of Medium: -40 to +212 °F (-40 to +100 °C)
- Operating Temperature Range: -13 to +185 °F (-25 to +85 °C)
- Nominal Temperature Range: +32 to +158 °F (0 to +70 °C)
- CE mark: EN 50081-1 and -2, EN 50082-1 and -2
- Vibration Resistance: ≤ 20 g (196.2 m/s²)
(IEC 68-2-6 at 10 to 500Hz)
- Safety Type to DIN 40050: IP 65
- Supply Voltage - 2 conductor: 10 to 30 VDC
3 conductor: 12 to 30 VDC
- Residual Ripple Supply Voltage: $\leq 5\%$
- Hydraulic Connection: 9/16" SAE 6 female
- Parts In Contact with Medium: Stainless Steel, Viton Seal
- Life Expectancy: 100 million cycles at 0 to 70% Full Scale
- Current Consumption, 3 conductor: approx. 25 mA

Model Code	Output	Pressure Range	Part Number
HDA 4475-A-0150-000	2 conductor, 4-20 mA	0 to 150 PSI	00907015
HDA 4475-A-0750-000	2 conductor, 4-20 mA	0 to 750 PSI	00907016
HDA 4475-A-1000-000	2 conductor, 4-20 mA	0 to 1000 PSI	00907017
HDA 4475-A-3000-000	2 conductor, 4-20 mA	0 to 3000 PSI	00907019
HDA 4475-A-5000-000	2 conductor, 4-20 mA	0 to 5000 PSI	00907020
HDA 4475-A-6000-000	2 conductor, 4-20 mA	0 to 6000 PSI	00907021
HDA 4475-B-0150-000	3 conductor, 0-10 VDC	0 to 150 PSI	00907007
HDA 4475-B-0750-000	3 conductor, 0-10 VDC	0 to 750 PSI	00907008
HDA 4475-B-1000-000	3 conductor, 0-10 VDC	0 to 1000 PSI	00907009
HDA 4475-B-3000-000	3 conductor, 0-10 VDC	0 to 3000 PSI	00907011
HDA 4475-B-5000-000	3 conductor, 0-10 VDC	0 to 5000 PSI	00907012
HDA 4475-B-6000-000	3 conductor, 0-10 VDC	0 to 6000 PSI	00907013

For more detailed information on these switches and other options, please refer to the HYDAC Electronics Catalog.

Weld Base Clamps



Features:

- Steel weld plate, top plate, and bolts
- Polypropylene(PP) clamp pairs

Standard Duty

Tube Size	Model Code	Part No.
1/4"	HRL 1 A 6.4 PP UNC	02056149
3/8"	HRL 1 A 9.5 PP UNC	02056150
1/2"	HRL 2 A 12.7 PP UNC	02056152
5/8"	HRL 2 A 16 PP UNC	02056154
3/4"	HRL 3 A 19 PP UNC	02056156
1"	HRL 3 A 25.4 PP UNC	02056159
1 1/4"	HRL 5 A 32 PP UNC	02056161
1 1/2"	HRL 5 A 38 PP UNC	02056163
1 3/4"	HRL 6 A 44.5 PP UNC	02056165
2"	HRL 6 A 50.8 PP UNC	02056167

Pipe Size	Model Code	Part No.
1/4"	HRL 2 A 14 PP UNC	02056153
3/8"	HRL 2 A 17.1 PP UNC	02056155
1/2"	HRL 3 A 21.3 PP UNC	02056157
3/4"	HRL 4 A 26.6 PP UNC	02056160
1"	HRL 5 A 33.7 PP UNC	02056162
1 1/2"	HRL 6 A 48.3 PP UNC	02056166

Heavy Duty

Tube Size	Model Code	Part No.
1"	HRS 2 S 25.4 PP UNC	02056178
1 1/4"	HRS 3 S 32 PP UNC	02056180
1 1/2"	HRS 3 S 38 PP UNC	02056182
2"	HRS 4 S 50.8 PP UNC	02056186
4"	HRS 6 S 101.6 PP UNC	02056195
4 1/2"	HRS 6 S 114.3 PP UNC	02056196

Pipe Size	Model Code	Part No.
1"	HRS 3 S 33.7 PP UNC	02056181
1 1/4"	HRS 3 S 42 PP UNC	02056183
1 1/2"	HRS 4 S 48.3 PP UNC	02056185
2"	HRS 4 S 60.3 PP UNC	02056188
3"	HRS 5 S 88.9 PP UNC	02056194
4"	HRS 6 S 114.3 PP UNC	02056196
5"	HRS 7 S 139.7 PP UNC	02056197
6"	HRS 7 S 168 PP UNC	02056198

For more detailed information on these clamps and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Weld Base Twin Clamps



Features:

- Steel weld plate, top plate, and bolts
- Polypropylene(PP) clamp pairs

Tube Size	Model Code	Part No.
1/4"	HRZ 1 A 6.4-6.4 PP UNC	02058873
3/8"	HRZ 1 A 9.5-9.5 PP UNC	02059302
1/2"	HRZ 2 A 12.7-12.7 PP UNC	02058874
5/8"	HRZ 2 A 16-16 PP UNC	02059305
3/4"	HRZ 3 A 19-19 PP UNC	02058875
1"	HRZ 3 A 25.4-25.4 PP UNC	02059309

Pipe Size	Model Code	Part No.
1/4"	HRZ 2 A 13.7-13.7 PP UNC	02059304
3/8"	HRZ 2 A 17.1-17.1 PP UNC	02059306
1/2"	HRZ 3 A 21.3-21.3 PP UNC	02059307
3/4"	HRZ 4 A 26.7-26.7 PP UNC	02058881

For more detailed information on these valves and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

2-way Ball Valves



Features:

- Full passage, unrestricted flow
- Positive seal based on the “floating ball” principle
- Carbon steel housing
- Polyacetal ball seals
- Viton seals

NPT Ports

Size	Model Code	Pressure	Part No.
1/4"	KHB-06NPT-1114-11X	7250 PSI	02060280
3/8"	KHB-10NPT-1114-11X	7250 PSI	02060281
1/2"	KHB-16NPT-1114-11X	5800 PSI	02060282
3/4"	KHB-20NPT-1114-11X	5000 PSI	02060283
1"	KHB-25NPT-1114-11X	5000 PSI	02060284
1 1/4"	KHM-32NPT-1114-16X	5000 PSI	02060285
1 1/2"	KHM-40NPT-1114-16X	5000 PSI	02060286
2"	KHM-50NPT-1114-16X	5000 PSI	02060287

SAE Ports

Thread Size	Model Code	Pressure	Part No.
7/16-20UNF	KHB-06SAE-1114-11X	7250 PSI	02060288
9/16-18UNF	KHB-10SAE-1114-11X	7250 PSI	02060289
3/4-16UNF	KHB-16SAE-1114-11X	5800 PSI	02060290
1 1/16-12UN	KHB-20SAE-1114-11X	5000 PSI	02060291
1 5/16-12UN	KHB-25SAE-1114-11X	5000 PSI	02060292
1 5/8-12UN	KHM-32SAE-1114-16X	5000 PSI	02060293
1 7/8-12UN	KHM-40SAE-1114-16X	5000 PSI	02060294



Code 61 Split Flange Connections

Size	Model Code	Pressure PSI	Part No.
1"	KHB-25F3-1114X-12X	5000	02060298
1 1/4"	KHM-32F3-1114X-16X	4000	02060299
1 1/2"	KHM-40F3-1114X-16X	3000	02060300
2"	KHM-50F3-1114X-16X	3000	02060301

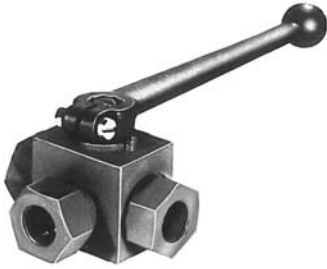


Code 62 Split Flange Connections

Size	Model Code	Pressure PSI	P/N
2"	KHM-50F6-1114X-16X	5000	02060307

For more detailed information on these valves and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

3-Way Diverter Ball Valves



Features:

- Full passage, unrestricted flow
- Positive seal based on the “floating ball” principle
- Carbon steel housing
- Polyacetal ball seals
- Viton seals

NPT Ports

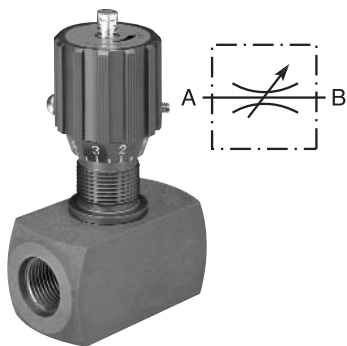
Size	Model Code	Pressure	Part No.
1/4"	KHB3K-06NPT-L-1114-11X	7250 PSI	02060710
3/8"	KHB3K-10NPT-L-1114-11X	7250 PSI	02060711
1/2"	KHB3K-16NPT-L-1114-11X	4600 PSI	02060712
3/4"	KHB3K-20NPT-L-1114-11X	4500 PSI	02060713
1"	KHB3K-25NPT-L-1114-11X	3600 PSI	02060714

SAE Ports

Size	Model Code	Pressure	Part No.
1 1/16-12UN	KHB3K-20SAE-L-1114-11X	4500 PSI	02060718
1 5/16-12UN	KHB3K-25SAE-L-1114-11X	3600 PSI	02060719

For more detailed information on these valves and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Needle Valves



Features:

- 5000 PSI Working Pressure
- Inline Mounting
- Carbon steel housing
- Viton seals
- Graduated knob & color coded spindle for accurate flow control
- Safety spindle design

NPT Ports

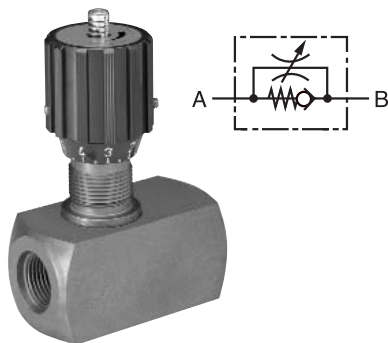
Size	Model Code	Part No.
1/4"	DV-08-01.X/5	00705018
3/8"	DV-10-01.X/5	00705030
1/2"	DV-12-01.X/5	00705042
3/4"	DV-16-01.X/5	00705054
1"	DV-20-01.X/5	00705066

SAE Ports

Size	Model Code	Size	P/N
-4	DV-08-01.X/12	7/16-20UNF	00705022
-6	DV-10-01.X/12	9/16-18UNF	00705034
-8	DV-12-01.X/12	3/4-16UNF	00705046
-12	DV-16-01.X/12	1 1/16-12UN	00705058
-16	DV-20-01.X/12	1 5/16-12UN	00705070

For more detailed information on these valves and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Flow Control Valves



Features:

- 5000 PSI Working Pressure
- Inline Mounting
- Carbon steel housing
- Viton seals
- Graduated knob & color coded spindle for accurate flow control
- Safety spindle design

NPT Ports

Size	Model Code	Part No.
1/4"	DRV-08-01.X/5	00705518
3/8"	DRV-10-01.X/5	00705530
1/2"	DRV-12-01.X/5	00705542
3/4"	DRV-16-01.X/5	00705554

SAE Ports

Size	Model Code	Size	Part No.
-4	DRV-08-01.X/12	7/16-20UNF	00705522
-6	DRV-10-01.X/12	9/16-18UNF	00705534
-8	DRV-12-01.X/12	3/4-16UNF	00705546
-12	DRV-16-01.X/12	1 1/16-12UN	00705558
-16	DRV-20-01.X/12	1 5/16-12UN	00705570

For more detailed information on these valves and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Check Valves



Features:

- 5000 PSI Working Pressure
- Inline Mounting
- Carbon steel housing
- Metal to metal seal design
- Hardened and ground steel poppet
- Cracking pressure - 7 PSI (0.48 bar)



NPT Ports

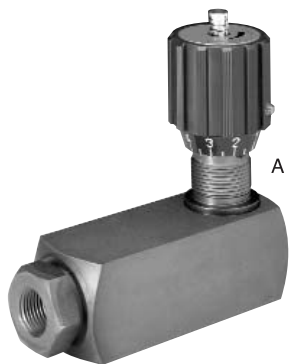
Size	Model Code	Part No.
1/4"	RV-08-01.X/5	00705830
3/8"	RV-10-01.X/5	00705833
1/2"	RV-12-01.X/5	00705836
3/4"	RV-16-01.X/5	00705839
1"	RV-20-01.X/5	00705842
1 1/4"	RV-25-01.X/5	00705845
1 1/2"	RV-30-01.X/5	02057126

SAE Ports

Size	Model Code	Size	Part No.
-4	RV-08-01.X/12	7/16-20UNF	00705831
-6	RV-10-01.X/12	9/16-18UNF	00705834
-8	RV-12-01.X/12	3/4-16UNF	00705837
-12	RV-16-01.X/12	1 1/16-12UN	00705840
-16	RV-20-01.X/12	1 5/16-12UN	00705843
-20	RV-25-01.X/12	1 5/8-12UN	00705846
-24	RV-30-01.X/12	1 7/8-12UN	02064132

For more detailed information on these valves and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Pressure Compensated Flow Control Valves



Features:

- 5000 PSI Working Pressure
- Inline Mounting
- Carbon steel housing
- Viton seals
- Graduated knob & color coded spindle for accurate flow control
- Safety spindle design



NPT Ports

Size	Model Code	Part No.
1/4"	SRVR-08-01.X/5	00706071
3/8"	SRVR-10-01.X/5	00706079
1/2"	SRVR-12-01.X/5	00706087
3/4"	SRVR-16-01.X/5	00706095

For more detailed information on these valves and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Breathers & Filler Breathers



About Breathers & Filler Breathers:

- Suitable for petroleum based liquids and gaseous media
- Impregnated paper filter media

Type	Connection	Micron	Model Code	Part No.
Breather	G 3/4"	10	BF P 3 G 10 W 1.0	00306336
Spin-on Breather	1 1/4" NPT	10	BL P 160 G 10 W 2.0	02061383
Filler Breather	6 bolt circle ø 2.874"	10	ELF P 3 F 10 W 1.0	00320037

For more detailed information on these breathers, filler breathers and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Drymicron Breathers



Features:

- Silicia gel absorbs up to 0.9 lbs of H₂O
- 2 micron solid particle filter
- Environmentally safe for easy disposal
- Air flow rate: 35 cfm (990 l/min)
- Operating temperature: -26° to 200°F

Height in. (mm)	Model Code	Max. H ₂ O Capacity	Part No.
3.5 (90)	BD 100 X 2 W 0.0	0.2 (0.1)	02074253
5 (128)	BD 200 X 2 W 0.0	0.4 (0.2)	02074254
8 (205)	BD 400 X 2 W 0.0	0.9 (0.5)	02074465
10 (254)	BD 800 X 2 W 0.0	1.3 (0.6)	02075158

Adapters*

Description	Part No.
Threaded 1" NPT	02074249
Bayonet	02074251

*All adapters are connected to the Drymicron via a friction connection and they are re-usable.

For more detailed information on these breathers, filler breathers and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Fluid Level Indicators



Features:

- Size is the distance between centers of mounting bolts
- Transparent polyamide sight tube
- Simple and rugged construction of anodized aluminum
- NBR seals
- Maximum pressure - 14.5 PSI (1 bar)
- M 12 mounting bolts

Gauge with Thermometer*

Size	Model Code	Part No.
3"	FSA 76-1.1/T/12	00700004
5"	FSA 127-1.1/T/12	00002224
10"	FSA 254-1.1/T/12	00700076

* Thermometers have dual Celsius/Fahrenheit Scales from 10°C to 80°C (50°F to 176°F)

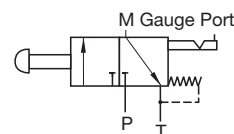
For more detailed information on these fluid level indicators and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Single Station Gauge Isolators



About Single Station Gauge Isolators:

- Push to read (spring return)
- Can be locked for continuous pressure reading
- 5075 psi working pressure
- T-port max. 145 psi
- Temperature range -4°F to 176°F
- Viton seals



Size	Model Code	P/N
1/4" NPT	MA1A1.0/5V	02057940

For more detailed information on these gauge isolators and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

TestPoints - Series 1620



Features:

- M16x2.0 self sealing connection
- Suitable for petroleum based liquids and gaseous media
- Zinc plated steel body and zinc plated metal cap
- Buna N (NBR) Seals
- Temperature Range: -22°F to 248°F (-30°C to 120°C)

Pressure	Thread	Part No.
5800 PSI (400 bar)	1/8 NPTF	06003734
9000 PSI (630 bar)	1/4 NPTF	00639645
9000 PSI (630 bar)	7/16-20 UNF	06003735
9000 PSI (630 bar)	9/16-18 UNF	06003737

Direct Gauge Adapter

Max. Pressure	Thread	Part No.
9000 PSI (630 bar)	1/4 NPT	06003769

HYDAC offers a broad range of TestPoints. Different threads, and options are available. For more detailed information on these TestPoints and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

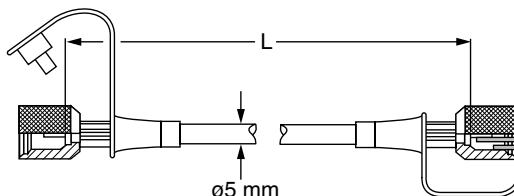
Micro Bore Flexible Hoses - Series 1620



Features:

- Suitable for petroleum based liquids and gaseous media
- Rated for 9000 PSI (630 bar)
- Polyamide core with polyester braid reinforcement and polyamid cover
- Plastic dust caps
- M16x20 female connections at both ends
- Minimum bending radius: 20 mm
- Temperature Range: -4°F to 212°F (-20°C to 100°C)

Length	Part No.
11.81" (300 mm)	06003724
24.80" (630 mm)	06003726
39.37" (1000 mm)	00632634

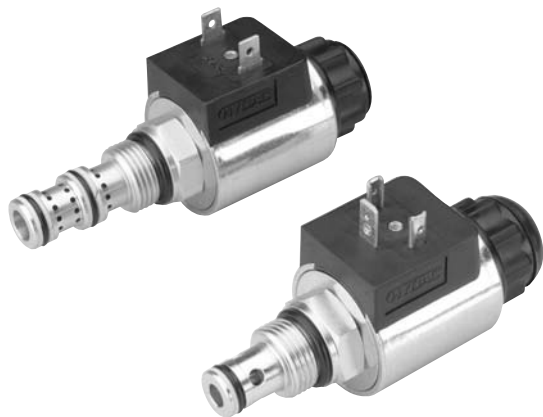


Hose to Gauge Adapter

Pressure	Thread	Part No.
9000 PSI (630 bar)	1/4 NPT	06003768

For more detailed information on these and other Micro Bore Hoses and other options, please refer to the HYDAC Hydraulic Accessories Catalog.

Cartridge Valves



About Standard Cartridge Valves:

The cartridge valves listed below represent only a small fraction of HYDAC's cartridge valve capability. They have been selected to provide a consistently fast path to the most widely applied of HYDAC common-cavity cartridge solutions. The staff at HYDAC Hydraulic Division can help you with both competitive crossover and technical reviews to choose the correct valve from in-stock components at HYDAC's Illinois facility.

Standard HYDAC cartridge valves:

- Leakfree solenoid seat valves
- Waterproof coil systems
- Wide voltage tolerance
- Leakfree load controls
- Stable pressure & flow control
- Long cycle life
- 5000 psi rating

Pressure Controls

Model Code	Description	Part Number
DB08A-01-C-N-180V	Direct Acting Relief Valve, Size 8, 1800 psi max. adj.	00560418
DB08A-01-C-N-330V	Direct Acting Relief Valve, Size 8, 3300 psi max. adj.	00560419
DB10P-01-C-N-050V	Pilot Op. Relief Valve, Size 10, 500 psi max. adj.	03010838
DB10P-01-C-N-330V	Pilot Op. Relief Valve, Size 10, 3300 psi max. adj.	03010842
DR08-01-C-N-050V	Direct Acting Reducing Valve, Size 8, 500 psi max. adj.	03107709
DR08-01-C-N-300V	Direct Acting Reducing Valve, Size 8, 3000 psi max. adj.	03022444
DR10-01-C-N-070V	Direct Acting Reducing Valve, Size 10, 700 psi max. adj.	03026815
DR10-01-C-N-190V	Direct Acting Reducing Valve, Size 10, 1900 psi max. adj.	03026817

Flow Controls

Model Code	Description	Part Number
SD08-01-C-N-V	Needle Valve, Size 8	03009792
SD10-01-C-N-V	Needle Valve, Size 10	03017145
SDR10A-01-C-N-15V	Needle Valve w/ Reverse Flow Check, Size 10	03009854
SR08-01-C-N-4.8V	Pressure Comp. Flow Ctrl., Size 8, 2-5 gpm adj.	03015474
SR08-01-C-N-7.9V	Pressure Comp. Flow Ctrl., Size 8, 4-8 gpm adj.	03015475
SR10-01-C-N-10.0V	Pressure Comp. Flow Ctrl., Size 10, 4-8 gpm adj.	03053636
SRP08-01-C-N-7.9V	Priority Flow Control, Size 8, 3-8 gpm adj.	03020825

Load Controls

Model Code	Description	Part Number
RV08A-01-C-N-05	Check Valve, Size 8, 5 psi bias	00560084
RV10A-01-C-N-05	Check Valve, Size 10, 5 psi bias	03014052
RP08A-01-C-NS-15-4	Pilot Op. Check Valve, Size 8, 4:1 ratio, 15 psi bias	00561919
RP10A-01-C-NS-15-4	Pilot Op. Check Valve, Size 10, 4:1 ratio, 15 psi bias	00561209
RS08-01-C-N-4-500V	Counterbalance Valve, 4:1 ratio, 5000 psi max adj.	00562798

Solenoid Directional Controls

Model Code	Description	Part Number
WS08W-01-C-N-0	Poppet Valve, 2/2, N.C., Double Blocking, Size 8 ¹	03008246
WS10W-01-C-N-0	Poppet Valve, 2/2, N.C., Double Blocking, Size 10 ²	03105613
WS08YR-01-C-N-0	Poppet Valve, 2/2, N.O., Size 8 ¹	00562882
WS10YR-01-C-N-0	Poppet Valve, 2/2, N.O., Size 10 ¹	03031204
WS08ZR-01-C-N-0	Poppet Valve, 2/2, N.C., Size 8 ¹	00560182
WS10ZR-01-C-N-0	Poppet Valve, 2/2, N.C., Size 10 ¹	03031199
WK08W-01-C-N-0	Spool Valve, 2/2, N.C., Size 8 ¹	03018569
WK10W-01-C-N-0	Spool Valve, 2/2, N.C., Size 10 ²	03094873
WK08V-01-C-N-0	Spool Valve, 2/2, N.O., Size 8 ¹	03010185
WK10V-01-C-N-0	Spool Valve, 2/2, N.O., Size 10 ²	03094869
WK08C-01-C-N-0	Spool Valve, 3/2, Size 8 ¹	03010189
WK10C-01-C-N-0	Spool Valve, 3/2, Size 10 ²	03094657
WK08L-01-C-N-0	Spool Valve, 3/2, Size 8 ¹	03013214
WK10L-01-C-N-0	Spool Valve, 3/2, Size 10 ²	03096767
WK08X-01-C-N-0	Spool Valve, 4/2, Size 8 ¹	03016617
WK10X-01-C-N-0	Spool Valve, 4/2, Size 10 ²	03096759
WK08Z-01-C-N-0	Spool Valve, 4/2, Size 8 ¹	03011592
WK10Z-01-C-N-0	Spool Valve, 4/2, Size 10 ²	03094895
WK10E-01-C-N-0	Spool Valve, 4/3, Closed Center, Size 10 ¹	03046159
WK10J-01-C-N-0	Spool Valve, 4/3, Motor/Float Center, Size 10 ¹	03051156

1) Use coil series -40-1836

2) Use coil series -50-1836

Solenoid Coils

Model Code	Description	Part Number
12DG -40-1836	12VDC, DIN 43650A Cnnx., 40 mm length	03000489
12DG -50-1836	12VDC, DIN 43650A Cnnx., 50 mm length	00915151
24DG -40-1836	24VDC, DIN 43650A Cnnx., 40 mm length	03000249
24DG -50-1836	24VDC, DIN 43650A Cnnx., 50 mm length	00915142
12DL -40-1836	12VDC, Dual 18" Leadwires, 40 mm length	03002244
12DL -50-1836	12VDC, Dual 18" Leadwires, 50 mm length	03091633
24DL -40-1836	24VDC, Dual 18" Leadwires, 40 mm length	03003119
24DL -50-1836	24VDC, Dual 18" Leadwires, 50 mm length	03112951
115AG -40-1836	115VAC, DIN 43650A Cnnx., 40 mm length	03003156
115AG -50-1836	115VAC, DIN 43650A Cnnx., 50 mm length	03019735

Line Bodies

Model Code	Description	Part Number
FH082-AS6	FC08-2 Cavity (2-way), 3500 psi max., Alum, SAE-6 ports	03011409
FH083-AS6	FC08-3 Cavity (3-way), 3500 psi max., Alum, SAE-6 ports	03011424
FH084-AS6	FC08-4 Cavity (4-way), 3500 psi max., Alum, SAE-6 ports	03011404
FH102-AS8	FC10-2 Cavity (2-way), 3500 psi max., Alum, SAE-8 ports	03037778
FH103-AS8	FC10-3 Cavity (3-way), 3500 psi max., Alum, SAE-8 ports	03038095
FH104-AS8	FC10-4 Cavity (4-way), 3500 psi max., Alum, SAE-8 ports	03038110

For more detailed information on these cartridge valves and other options, please refer to the HYDAC Cartridge Valves & Manifolds catalog.

1. General Terms and Conditions of Sale

Payment Terms: Net 30 Days

FOB Point: Bethlehem, Pennsylvania, Glendale Heights, Illinois, Houston, Texas

Routing: Unless a purchase order specifies a preferred routing, shipments will be made by the most economical means with the freight charges "collect". Exception to this will be carriers which require payment in advance.

Returned Goods: To return goods, the Buyer must get approval from HYDAC and must obtain an authorization number (RGA #) from the HYDAC Customer Service Department. Only parts that are under current warranty can be accepted. A restocking charge at least of 25% of the original purchase price will be applied. Large quantity returns, if accepted, are subject to prior approval.

Cancellations: Cancellations, if accepted, will be subject to a charge of at least 25% of the original purchase price.

Warranty and Liability: Please refer to "HYDAC Limited Warranty and Limitation of Liability" and the attached "HYDAC Intellectual Property Terms and Conditions".

ALL HYDAC TERMS AND CONDITIONS OF SALE ARE SUBJECT TO CHANGE

2. HYDAC Limited Warranty and Limitation of Liability

For the limited purpose of this LIMITED WARRANTY AND LIMITATION OF LIABILITY, **HYDAC CORP.**, and **HYDAC TECHNOLOGY CORP.**, both Pennsylvania corporations, are hereinafter referred to collectively as "**HYDAC**". However, HYDAC CORP. and HYDAC TECHNOLOGY CORP. provide this LIMITED WARRANTY AND LIMITATION OF LIABILITY in their individual capacity, on their own behalf and separate from the other corporation. Each corporation is solely responsible for its products and warranty, and any other obligation pursuant to any agreement or otherwise. HYDAC CORP., or HYDAC TECHNOLOGY CORP., will not be responsible for the obligations of the other company.

HYDAC warrants products sold by it to be free from defects in material and workmanship, under normal use and service, for a period of eighteen (18) months from the date of HYDAC's shipment of the products to the original Buyer, or for a period of twelve (12) months from the date the product is first placed in operation, whichever comes first (*hereinafter referred to as the "warranty period"*), subject to the following:

HYDAC during the warranty period will, at its option, refund the purchase price, repair or replace any product, which under normal conditions proves to be defective in material or workmanship. No charge will be made for labor or parts with respect to defects covered by this warranty, provided that the work is completed by HYDAC. However, this warranty does not cover expenses incurred in the removal and reinstallation of any product, whether or not proven defective.

To obtain protection under this warranty, Buyer shall provide HYDAC with written notice of the alleged defect along with the purchase receipt or other proof that the product is within the warranty period. All warranty claims are subject to HYDAC's inspection of the product and HYDAC's determination of a defect prior to HYDAC's acceptance of a warranty claim and issuance of the applicable credit for shipping charges, repairs, replacement or refund. Buyer shall be obligated for all costs, expenses, charges and risk of loss for shipment of the non-conforming product to HYDAC. However, shipping charges will be credited to Buyer after HYDAC's acceptance of a warranty claim.

Specifically excluded from this warranty are any claims arising as a result of improper use, neglect, abuse, improper operation or filtration, extreme temperatures, or unauthorized service of parts or Buyer's failure to comply with all installation, operation and maintenance requirements and specifications provided to Buyer by HYDAC. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** No attempt to alter, amend or extend this warranty shall be effective unless in writing and signed by an executive officer of HYDAC.

HYDAC and/or any affiliate or related company will not be liable for any consequential, incidental, special, punitive, exemplary or other damages (including, but not limited to, damages resulting from commercial or economic loss) or costs and expenses (including, but not limited to, attorneys' fees and litigation costs), incurred as a result of any claim whether based on breach of warranty or otherwise. In no event shall HYDAC's liability exceed the cost of repairing or replacing the product which gives rise to any claim or refunding the purchase price of the product which gives rise to any claim.

Any sale, resale, use, lease, assignment or other transfer of HYDAC products shall be made pursuant to and limited by the above-stated terms.

3. Intellectual Property Terms and Conditions

Trademarks: All trademarks, trade names, or other identifying marks (collectively referred to as the "marks") now or hereafter registered or used by HYDAC are its property and Buyer's use of these marks must be approved in advance in writing by HYDAC and shall be limited to use on or in connection with HYDAC's products. HYDAC reserves the right to review, approve or restrict the use of all printed materials bearing any HYDAC mark. Buyer shall, under no circumstances use any HYDAC mark as part of a corporate name. If Buyer is required to register under any statute for registration of a fictitious business name bearing any HYDAC mark, Buyer shall register in a form approved by HYDAC.

Copyrights: Any written materials supplied by HYDAC are its property and Buyer's use of these materials must be approved in writing by HYDAC. HYDAC at all times reserves the right to review, approve or inspect the use of all supplied written materials. No copies may be distributed by Buyer without bearing HYDAC's copyright notice in the following form:

Copyright
©20XX (e.g., 2005)
HYDAC TECHNOLOGY CORP.
All Rights Reserved

Copyright
©20XX
HYDAC CORP.
All Rights Reserved

Patents: HYDAC, at its sole discretion, may prosecute any infringement of HYDAC patents. In the event that HYDAC elects to prosecute alleged patent infringements, Buyer shall render such assistance to HYDAC as may be reasonably necessary to carry out such prosecution. Furthermore, Buyer shall immediately inform HYDAC of any known infringements of HYDAC's patents and of any and all known or claimed patent infringements relating to goods supplied or manufactured by HYDAC.

Warranties and Limits of Liabilities: HYDAC MAKES NO WARRANTY WITH RESPECT TO AND SHALL NOT BE LIABLE TO BUYER FOR ANY DAMAGES RELATING TO ANY TRADEMARK, PATENT AND/OR OTHER INTELLECTUAL PROPERTY INFRINGEMENT ARISING FROM: (i) GOODS MANUFACTURED ACCORDING TO BUYER'S DESIGN OR SPECIFICATIONS; AND (ii) USE OF THE GOODS IN CONJUNCTION OR COMBINATION WITH ANY OTHER GOODS NOT FURNISHED BY HYDAC WHERE INFRINGEMENT WOULD NOT HAVE OCCURRED BUT FOR SUCH USE. With respect to any claimed infringements arising out of (i) or (ii) above, Buyer shall indemnify HYDAC for any and all losses and damages incurred by HYDAC as a result thereof. **HYDAC SPECIFICALLY DISCLAIMS ANY LIABILITY WITH RESPECT TO PROCESS PATENTS OF OTHERS INVOLVING THE MANNER IN WHICH THE GOODS MAY BE INSTALLED, APPLIED OR USED.**

Where HYDAC goods are adjudged by a court of competent jurisdiction to infringe upon any trademark, patent or other intellectual property right, or where HYDAC written materials are adjudged to infringe upon any copyright, HYDAC shall have the right to repair, replace or otherwise remove the patent, trademark, copyright or other intellectual property infringement. In such circumstances, HYDAC's liability is limited to the refund of the costs of the goods or the written materials. In any and all circumstances, HYDAC shall not be responsible for any consequential, incidental, special, punitive, exemplary or other damages.

Any sale, resale, use, lease, assignment or other transfer of HYDAC products shall be made pursuant to and limited by the above-stated terms.

HYDAC CORPORATION		HYDAC TECHNOLOGY CORPORATION		
Accumulator Division	HYCON Division	Electronic Division	Hydraulic Division	Houston Office:
2280 City Line Road Bethlehem, PA 18017 610-264-9503	2260 City Line Road Bethlehem, PA 18017 610-266-0100	2260 City Line Road Bethlehem, PA 18017 610-266-0100	445 Windy Point Drive Glendale Heights, IL 60139 630-545-0800	1718 Fry Road, Suite 150 Houston, TX 77084 281-579-8100



HYDAC *Betafit*® Filter Elements

Exceptional Performance — Superior Stability.

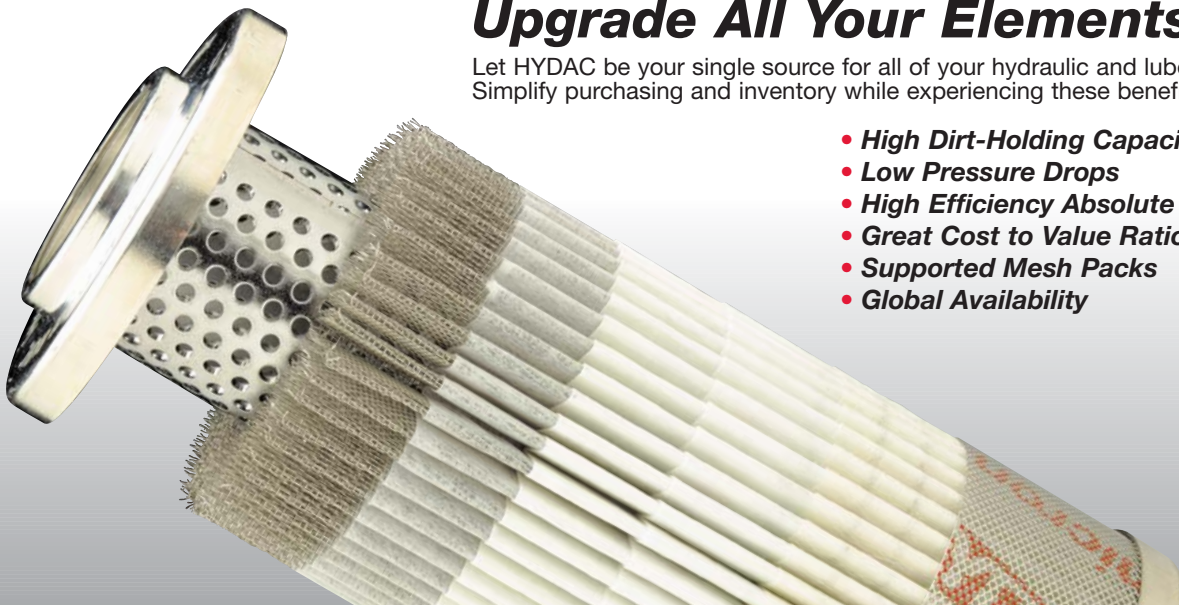
New Online Selector!
www.hydacusa.com/betafit

This new software is driven by a database that is constantly updated, so you know that you are viewing the most current data available. It allows users to quickly perform searches by model code OR manufacturer, and allows for the use of wildcards. This program also allows users to easily inquire about elements that are not listed.

Upgrade All Your Elements Today!

Let HYDAC be your single source for all of your hydraulic and lube oil filter elements. Simplify purchasing and inventory while experiencing these benefits:

- **High Dirt-Holding Capacities**
- **Low Pressure Drops**
- **High Efficiency Absolute Ratings**
- **Great Cost to Value Ratio**
- **Supported Mesh Packs**
- **Global Availability**



HYDAC INTERNATIONAL

The Single Source for Hydraulic Components

HYDAC Accumulators

Bladder, Piston, & Diaphragm Types; Pulsation Dampeners & Shock Absorbers;
Safety & Shut-off Blocks; Charging & Gauging Units; Mounting Components & Accessories

HYDAC Filters

Hydraulic Oil; Lube Oil; Fuel & Fuel Oil; Water; Process;
High Pressure; Return Line; Suction; Strainers; Inline; Manifold-mount; Modular Stacking;
In-tank; Inside Tank; Circuit Protectors; Spin-on; Backflush; Selectable Duplex; Clogging Indicators;
Wide Variety of Elements Including Interchanges for All Major Brands; Private Labeling for OEM's

HYDAC Fluid Service Products

Offline & Portable Filters; Online & Portable Realtime Particle Counters; Water Sensors;
Fluid Sampling Kits; Fluid Analysis Kits; Vacuum Dehydration Water Removal Units

HYDAC Valves

High & Low Pressure Ball Valves; Flow, Needle, & Check Valves;
Hydraulic/Pneumatic Actuators; Custom Valve Design

HYDAC Clamps

Hose, Tube, & Pipe Clamps; Cushion Clamps; Band Straps;
U-bolts; Fixed Cylinder Clamps; Custom Clamping Solutions

HYDAC Accessories

TestPoints & Flexible Test Hoses; Fluid Level Indicators; Gauge Isolators;
Suction Strainers; Breathers; Filler/Breathers; Desiccant Breathers

HYDAC Electronics

Pressure & Temperature Transducers & Switches; Flow Rate Meters;
Current Probes; Digital Displays; Portable Data Recorders

HYDAC Coolers

Air-Cooled & Water-Cooled Models; Cooler, Pump/Filter, & Pump/Filter/Cooler Units;
AC Industrial Models; DC & Hydraulic Drive Mobile Models

HYDAC Compact Power Units

High Pressure & Compact Power Units;
Standard & Custom Integrated Control Units

HYDAC Cartridge Valves

Pressure Controls — Reducing & Relieving Valves; Proportional Pressure & Flow Control Valves;
Check Valves; Flow Controls; Load Controls — Counterbalance & Pilot-Op. Check Valves;
Custom Manifold Design & Manufacturing; Solenoid Directional Valves — Poppet & Spool Types;
5000 psi, up to 40 GPM; Inline Mounting Bodies

HYDAC Mobile Systems

Central Valve Blocks; Suspension Control; Steering Control;
Power Attachment Controls; Design & Application Assistance

www.hydacusa.com