HYDAC INTERNATIONAL

Filters

FMND Series

Service and Parts
(Option - in accordance with DIN 24550)

up to 105 gpm (400 l/min), up to 3000 psi (250 bar)

1. Maintenance

1.1 General

Please follow the maintenance instructions.

1.2 Installation

Before installing the filter into the system, check that the operating pressure of the system does not exceed the permitted operating pressure of the filter.
Refer to the type code label on the filter.

Under extreme conditions (e.g. cold start), bypass valves will allow a partial flow past the element for a short time.

1.3 Commissioning

Check that the correct filter element is installed. Screw in bowl again fully *(metal to metal contact)* and then unscrew by one quarter-turn *(the sealing effect will not be improved by overtightening)*.

Switch on the hydraulic system and check filter for leakage.

Vent filter at an appropriate point in the system.

1.4 Maintenance Tools

Size	Wrench for filter bowl	Allen key for oil drain plug	Wrench for VD 0 A.1
40-140	Hex 27	Hex 10*	Hex 27
160-400	Hex 32	Hex 8	Hex 27

*only for SO184

1.5 Torque Values

Type	Torque Nm [ft-lb]
VM clogging indicator	33 [24] Standard
VD clogging indicator	100 [74] 50 [36] (A, LE, LZ)
Oil Drain Plug	Consult HYDAC - G3/8
Bowl/	Do not Torque *(See 1.3 and 2.2)*
Vent Plug	18 [13]

2. Element Replacement

2.1 Element Removal

1. Do not switch off the hydraulic system.
2. Establish which filter side is in operation – look at pictogram on the filter.
3. Pull the lever away from filter and turn the lever through 90° – the other filter side is now in operation.
4. Open vent screw.
5. **Size 40 – 140:**
   Unscrew the filter bowl on the side no longer in operation *(collect fluid in a suitable container and clean or dispose of it in accordance with environmental regulations)*.
   Size 160 – 400 (or SO184):
   Open oil drain plug on the filter side no longer in operation *(collect fluid in a suitable container and clean or dispose of it in accordance with environmental regulations)* and unscrew filter bowl.
6. Remove filter element from element nozzle in filter head *(check surface of element for contamination residue and larger particles; these can indicate damage to components)*.
7. Replace or clean filter element - only W/HC *(wire screen)* and V *(metal fiber)* elements can be cleaned.
8. Clean filter bowl and filter head; particular attention must be given to the threads.
9. Examine filter, especially sealing surfaces, for mechanical damage.
10. Check O-rings – and replace if necessary

2.2 Element Installation

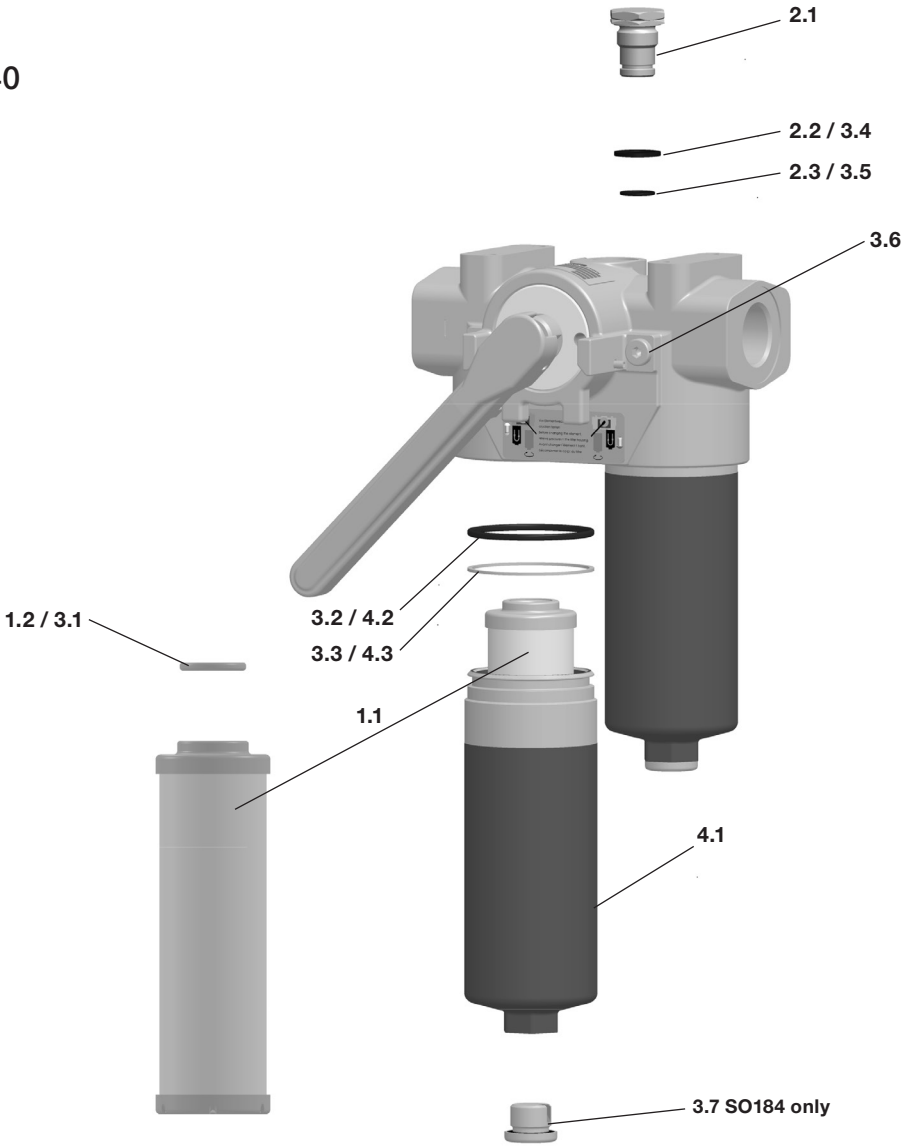
1. Wet the sealing surfaces and thread on the filter head and bowl, as well as the O-ring on the bowl and element, with clean operating fluid.
2. When installing a new filter element, check that the designation corresponds to that of the old element.
3. Place filter element carefully on to the element nozzle in the filter head.
4. Apply silver grade anti-seize *(per Mil-PRF-907E)* to threads. Screw in filter bowl fully *(metal to metal contact)* and then unscrew by one quarter-turn.
5. Apply silver grade anti-seize *(per Mil-PRF-907E)* to threads. Screw in oil drain plug.
6. To fill, pull lever away from the filter *(the filter side is now filled with oil and vented at the same time)*. Then release lever.
7. Close vent screw.
8. Check filter for leakage.

NOTE:
Contamination or incomplete pressure release on disassembly can lead to seizing of the bowl thread.

Filter elements which cannot be cleaned must be disposed of in accordance with environmental protection regulations.

3. Spare Parts

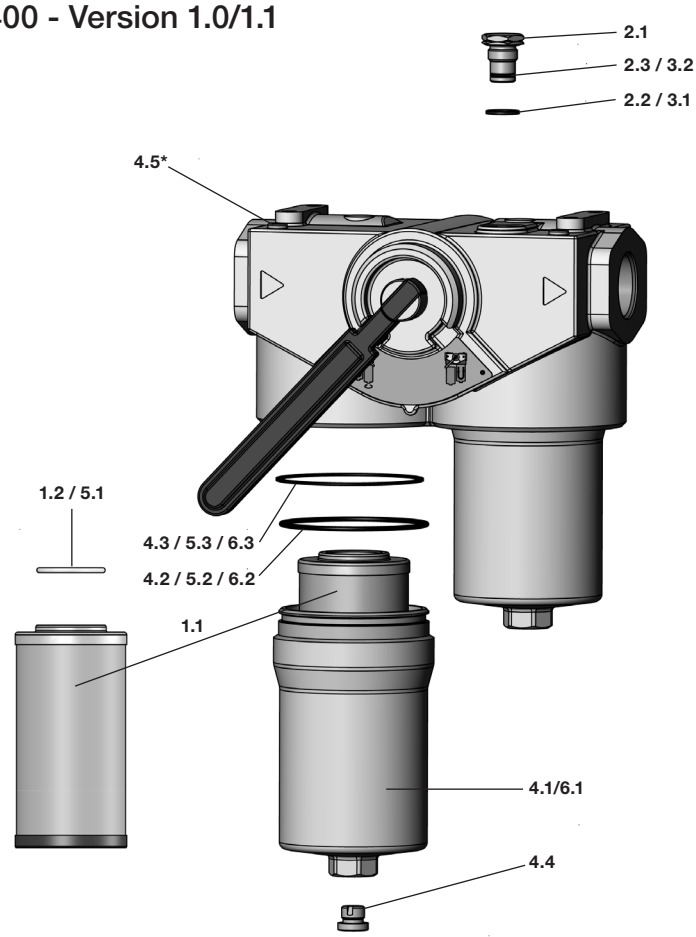
3.1 FMND 40 - 140



Item	Consists	Designation	60	110	140	40	63	100
1		**Filter element**	See Point 4. Replacement elements					
	1.1	Filter element	0060 D...	0110 D...	0140 D...	0040 DN...	0063 DN...	0100 DN...
	1.2	O-ring	22 x 3			21.82 x 3.53		
2		**Clogging indicator or indicator plug**	See Point 5. Replacement clogging indicator					
	2.1	Indicator plug VD 0 A.1 VD 0 A.1 /-V	305932 305931					
	2.2	Profile seal ring	VD					
	2.3	O-ring	15 x 1.5					
3		**Repair kit FMND** **Repair kit FMND /-V**	01294465 01294466			01288973 01294467		
	3.1	O-ring (element)	22 x 3			21.82 x 3.53		
	3.2	O-ring (bowl)	59 x 3					
	3.3	Back-up ring (bowl)	DF 60					
	3.4	Profile seal ring (indicator)	VD					
	3.5	O-ring (indicator)	15 x 1.5					
	3.6	Vent plug	G 1/8 NA					
	3.7	Oil drain plug, SO184 only	G1/2 NA					
4		**Bowl Assembly**	Consult HYDAC					
		Bowl Assembly /-V						
	4.1	Bowl						
	4.2	O-ring (bowl)						
	4.3	Back-up ring (bowl)						

*If present - O-Ring durometer can range from 70-80Sh. EPR Seal Kits available on request.
- Bowl assembly kits on request – kits include complete bowl with seals, plug.

3.2 FMND 160 – 400 - Version 1.0/1.1

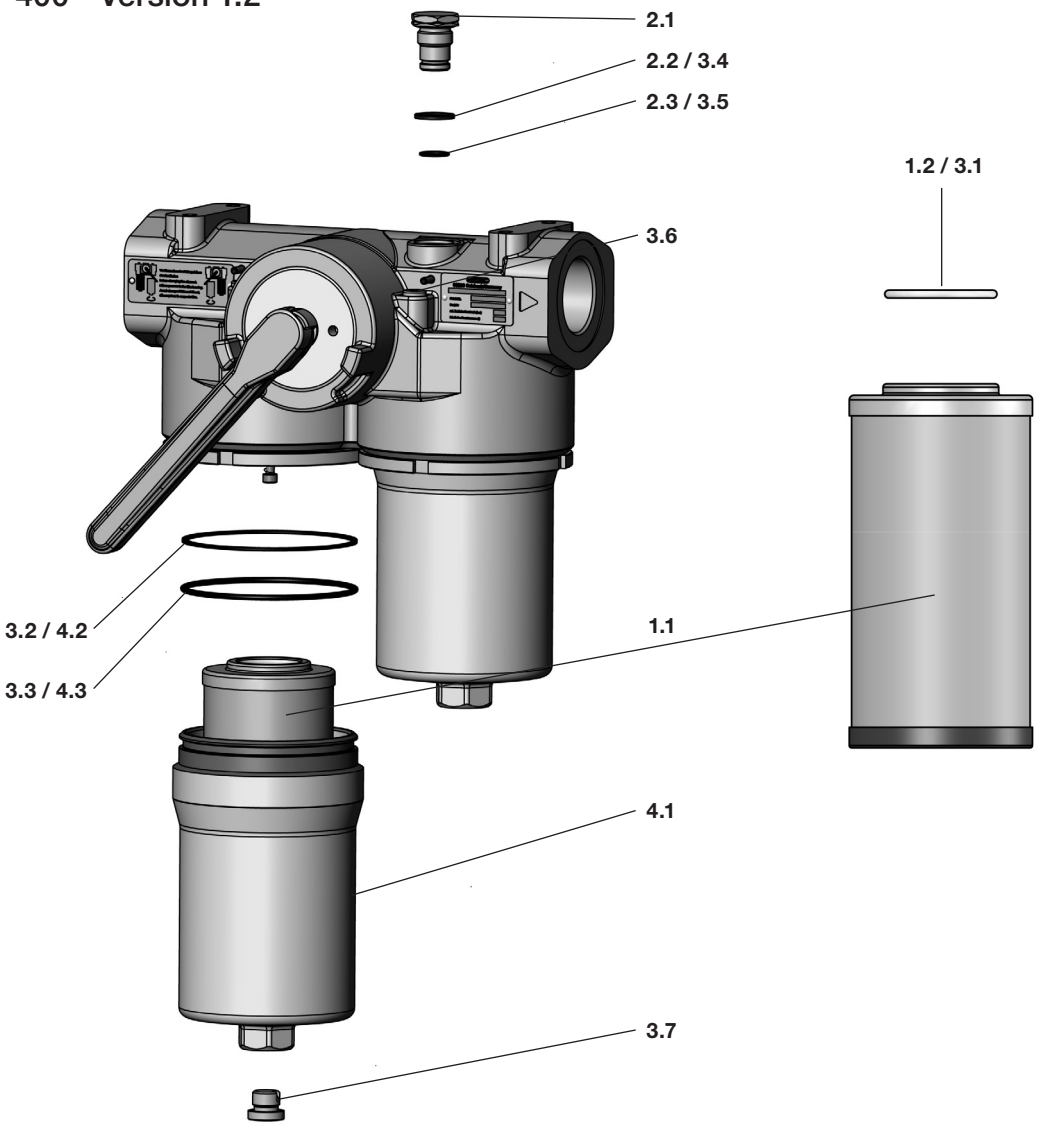


Item	Consists	Designation	160	250	400
1		**Filter element**	see Point 4. Replacement elements		
	1.1	Filter element	0160 DN...	0250 DN...	0400 DN...
	1.2	O-ring	40.87 x 3.53		
2		**Clogging indicator or indicator plug**	See Point 5. Replacement clogging indicator		
	2.1	Indicator plug VD 0 A.1 VD 0 A.1 /-V	305932 305931		
	2.2	Profile seal ring	VD		
	2.3	O-ring	15 x 1.5		
3		**Seal kit-E VD** **Seal kit-E VD /-V**	319648 319638		
	3.1	Profile seal ring	VD		
	3.2	O-ring	15 x 1.5		
4		**Bowl-E** **Bowl-E /-V**	01276724 01276762	01276514 01276763	01276725 01276764
	4.1	Housing FMND...	FMN...		
	4.2	Back-up ring	FLN 160		
	4.3	O-ring	102 x 3		
	4.4	Oil drain plug	G 3/8 NA		
	4.5*	Vent screw	G 1/8 NA		
5		**Seal kit-E FMND** **Seal kit-E FMND /-V**	01276726 01276765		
	5.1	O-ring (element)	40.87 x 3.53		
	5.2	Back-up ring	FLN 160		
	5.3	O-ring (bowl)	102 x 3		
6		**Bowl Assembly**	TBD; 2212571 w/ QPD design	1276514; 2212572 w/ QPD design	1276725; 2212573 w/ QPD design
		Bowl Assembly /-V	1276762; 2212571 w/ QPD design	1276763; 2212572 w/ QPD design	1276764; 2212573 w/ QPD design
	6.1	Bowl	BOWL FMND160	BOWL FMND250	BOWL FMND400
	6.2	O-ring (bowl)	102 x 3	102 x 3	102 x 3
	6.3	Back-up ring (bowl)	FMND….160	FMND….160	FMND….160

*If present - O-Ring durometer can range from 70-80Sh. EPR Seal Kits available on request.
- Bowl assembly kits on request – kits include complete bowl with seals, plug.

FILTER MAINTENANCE

3.3 FMND 160 – 400 - Version 1.2



Item	Consists	Designation	160	250	400
1		**Filter element**	**See Pt. 4. Replacement elements**		
	1.1	Filter element	0160 DN...	0250 DN...	0400 DN...
	1.2	O-ring	40.87 x 3.53		
2		**Clogging indicator or indicator plug**	**See Point 5. Replacement clogging indicator**		
	2.1	Indicator plug VD 0 A.1 VD 0 A.1 /-V	00305932 00305931		
	2.2	Profile seal ring	VD		
	2.3	**O-ring**	15 x 1.5		
3		**Repair kit FMND** **Repair kit FMND /-V**	01294468 01294469		
	3.1	O-ring (element)	40.87 x 3.53		
	3.2	O-ring (bowl)	102 x 3		
	3.3	Back-up ring (bowl)	FLN 160		
	3.4	Profile seal ring (indicator)	VD		
	3.5	O-ring (indicator)	15 x 1.5		
	3.6	Vent plug	G 1/8 NA		
	3.7	Oil drain plug	G 3/8 NA		
4		**Bowl Assembly**	TBD; 2212571 w/ QPD design	1276514; 2212572 w/ QPD design	1276725; 2212573 w/ QPD design
		Bowl Assembly /-V	1276762; 2212571 w/ QPD design	1276763; 2212572 w/ QPD design	1276764; 2212573 w/ QPD design
	4.1	Bowl	BOWL FMND160	BOWL FMND250	BOWL FMND400
	4.2	O-ring (bowl)	102 x 3	102 x 3	102 x 3
	4.3	Back-up ring (bowl)	FMND….160	FMND….160	FMND….160

*If present - O-Ring durometer can range from 70-80Sh. EPR Seal Kits available on request.
- Bowl assembly kits on request – kits include complete bowl with seals, plug.

4. Replacement Element Model Code

0250 DN 010 BN4HC / V

Size
0160, 0250, 0400

Type
DN

Filtration Rating *(micron)*
3, 6, 10, 25 = BN4HC
25, 50, 100, 200 = W/HC

Element Media
BN4HC, W/HC

Seals
(omit) = Nitrile rubber (NBR) *(standard)*
V = Fluorocarbon elastomer (FKM)

Supplementary Details
SFREE = Element specially designed to minimize electrostatic charge generation
SO263 = Modification of elements for Skydrol or HYJET phosphate ester fluids

5. Clogging Indicator Model Code

VM 8 C . X / V

Indicator Prefix
VM = G 1/2 3000 psi

Trip Pressure
2.5 = 36 psid (2.5 bar) *(optional)*
5 = 72 psid (5 bar)
8 = 116 psid (8 bar)

Type of Indicator
A = no indicator, plugged port
B = pop-up indicator *(auto reset)*
BM = pop-up indicator *(manual reset)*
C = Electric switch – SPDT
D = Electric switch and light – SPDT

Modification Number

Supplementary Details

Seals
(omit)= Nitrile rubber (NBR)
V = Fluorocarbon elastomer (FKM) *(standard)*

Light Voltage *(D type indicators only)*
L24 = 24V L110 = 110V

Thermal Lockout *(VM, VD types C, D, J, and J4 only*
T100 = Lockout below 100°F

Underwriters Approval *(VM, VD types C, D, J, and J4 only)*
cRUus = Electrical Indicator with underwriter's approval

(*For additional details and options, see Section G - Clogging Indicators of the HYDAC Filter catalog.*)

Model Codes Containing RED are non-stock items — Minimum quantities may apply – Contact HYDAC for information and availability

6. Maintenance Instructions

6.1 User Instructions for Filters

- This pressure equipment must only be put into operation in conjunction with a machine or system.
- The pressure equipment must only be used as stipulated in the operating instructions of the machine or system.
- This pressure equipment must only be operated using hydraulic or lubricating fluid.
- It is the responsibility of the operator to comply with the water regulations of the country concerned.

CAUTION

- The user must take appropriate action (e.g. venting) to prevent the formation of air pockets.
- Repairs, maintenance work and commissioning must only be carried out by trained personnel.
- Allow the pressure equipment to cool before handling.
- The stipulations of the operating instructions of the machine or the system must be followed.
- Statutory accident prevention regulations, safety regulations and safety data sheets for fluids must be observed.
- Filter housing must be grounded.
- When working on, or in the vicinity of, hydraulic systems, open flames, sparks and smoking are forbidden.
- Hydraulic oils and water-polluting fluids must not be allowed to enter the soil or watercourses or sewer systems. Please ensure safe and environmentally friendly disposal of hydraulic oils. The relevant regulations in the country concerned with regard to ground water pollution, used oil and waste must be complied with.
- Whenever work is carried out on the filter, be prepared for hot oil to escape which can cause injury or scalding as a result of its high pressure or temperature.

DANGER!

- Comply with all regulations with regard to the disposal of used oil and waste.
- Wear proper protective clothing and guards to avoid injury or scalding due to high pressure or high temperature oil.
- Filter housing must be grounded.
- Disconnect all electrical power to the system and other electrical components, prior to working on filter clogging indicators.
- When using electrical clogging indicators, the electrical power supply to the system must be switched off before removing the clogging indicator connector.

6.2 Maintenance, General

This section describes maintenance work which must be carried out periodically. The operational safety and life expectancy of the filter, and whether it is ready for use, depend to a large extent on regular and careful maintenance.

6.3 Maintenance Measures

- Spare parts must fulfil the technical requirements specified by the manufacturer.
  This is always ensured when using original HYDAC spare parts.
- Keep tools, working area and equipment clean.
- After disassembling the filter, clean all parts, check for damage or wear and replace parts if necessary.
- When changing a filter element, a high level of cleanliness must be observed.

6.4 Interval Between Element Changes

In principle we recommend that the filter element is changed every 6 months or upon indication, whichever occurs first.

We recommend installing the filter with a clogging indicator (visual and/or electrical or electronic) to monitor the filter element.

If the clogging indicator responds, it is necessary to change or clean the filter element without delay (only W and V elements can be cleaned).

When no clogging indicator has been installed, we recommend changing the elements at specific intervals. *(The frequency of changing the filter elements depends on the filter design and the conditions under which the filter is operated)*. When filter elements are subject to high dynamic loading it may prove necessary to change them more frequently. The same applies when the hydraulic system is commissioned, repaired or when the oil is changed

The standard clogging indicators only respond when fluid is flowing through the filter. With electrical indicators the signal can also be converted into a continuous display on the control panel. In this case the continuous display must be switched off during a cold start or after changing the element.

If the clogging indicator responds during a cold start only, it is possible that the element does not yet need to be changed.

Customer Information in respect of Machinery Directive 2006/42/EC

Hydraulic filters are defined as fluid power parts / components and are therefore excluded from the scope of the Machinery Directive, sections 1.4.1 - 1.4.3. They do not bear the CE mark.

Before using these components, ensure compliance with the specifications provided by HYDAC Technology Corporation. The specifications also contain information on the relevant essential health and safety requirements (based on Machinery Directive 2006/42/EC).

We hereby declare that the filters are intended to be incorporated into machinery within the terms of the Directive 2006/42/EC. It is prohibited to put the filters into service until the machinery as a whole is in conformity with the provisions of the Machinery Directive.

Service address

HYDAC Technology Corporation
Filter Division

2260 City Line Road
Bethlehem, PA 18017
+1.610.266.0100

NOTE
The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

Notes

HYDAC INTERNATIONAL

Global Headquarters
HYDAC INTERNATIONAL GMBH

Industriegebiet
D – 66280 Sulzbach/Saar
Germany

Tel.: +49 6897 509-01

Fax: +49 6897 509-577

Internet: **www.hydac.com**
Email: info@hydac.com

North America Locations

USA

www.HYDAC-NA.com

North America Headquarters
HYDAC TECHNOLOGY CORPORATION
Filter Division
2260 City Line Road
Bethlehem, PA 18017
+1.610.266.0100

HYDAC TECHNOLOGY CORPORATION
Electronic Division
Process Filter Division
HYDAC CORPORATION
Accumulator Division
90 Southland Drive
Bethlehem, PA 18017
+1.610.266.0100

HYDAC TECHNOLOGY CORPORATION
Accessory Division
2204 Avenue C
Bethlehem, PA 18017
+1.610.266.0100

HYDAC TECHNOLOGY CORPORATION
Filter System Division
Process Filter Division
Fuel Filtration Division
580 West Park Road
Leetsdale, PA 15056
+1.724.318.1100

HYDAC TECHNOLOGY CORPORATION
Hydraulic Division –
Compact Hydraulics
450 / 445 Windy Point Drive
Glendale Heights, IL 60139
+1.630.545.0800

HYDAC TECHNOLOGY CORPORATION
Hydraulic Division – Tech Center
430 Windy Point Drive
Glendale Heights, IL 60139
+1.630.545.0800

HYDAC TECHNOLOGY CORPORATION
Cooling System Division
1051 Airlie Parkway
Denver, NC 28037
+1.610.266.0100

HYDAC TECHNOLOGY CORPORATION
Mobile Hydraulic Division
1660 Enterprise Parkway • Suite E
Wooster, OH 44691
+1.610.266.0100

HYDAC CYLINDERS LLC
540 Carson Road North
Birmingham, AL 35217
+1.205.520.1220

HYDAC TECHNOLOGY CORPORATION
HYDAC CORPORATION
Sales Office & Operations
510 Stonegate Drive
Katy, TX 77494
+1.281.579.8100

HYDAC TECHNOLOGY CORPORATION
HYDAC CORPORATION
NW Sales Office & Operations
1201 NE 144th St. Bldg. B • Suite 111
Vancouver, WA 98685
+1.610.266.0100

HYDAC TECHNOLOGY CORPORATION
HYDAC CORPORATION
NE Sales Office
1660 Enterprise Parkway • Suite E
Wooster, OH 44691
+1.610.266.0100

HYDAC TECHNOLOGY CORPORATION
HYDAC CORPORATION
SE Sales Office
1051 Airlie Parkway
Denver, NC 28037
+1.610.266.0100

HYDAC TECHNOLOGY CORPORATION
HYDAC CORPORATION
NC Sales Office
9415 West Forest Home Ave. • Suite 200
Hales Corners, WI 53130
+1.610.266.0100

Canada

www.HYDAC-NA.com

HYDAC CORPORATION
14 Federal Road
Welland, Ontario, Canada L3B 3P2
+1.905.714.9322

HYDAC CORPORATION
Sales Office
5160 75 Street NW
Edmonton, Alberta, Canada T6E 6W2
+1.780.484.4228

HYDAC CORPORATION
Sales Office
Montreal, Québec, Canada J2M 1K9
+1.877.539.3388

Mexico

www.HYDACmex.com

HYDAC INTERNATIONAL SA de CV
Calle Alfredo A Nobel No 35
Col Puente de Vigas
Tlalnepantla, Edo Mexico
CP 54090
Mexico
+011.52.55.4777.1262