

HYDAC **INTERNATIONAL**



**Filters and Accessories
for Use in Potentially
Explosive Atmospheres**





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.

Filters and Accessories for Use in Potentially Explosive Atmospheres

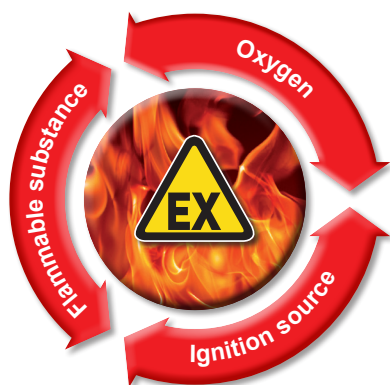


Certified to ATEX EU Directives – for a high degree of safety.

Avoiding the use of flammable substances would appear to be the simplest form of explosion protection.

However, in industries which involve chemicals, pharmaceuticals, mining, the extraction of oil and gas, mills (e.g. grain) as well as nuclear power, this is very difficult to achieve. Flammable substances such as gases, vapours, mists and dusts are essential for various processes and manufacturing methods within these industries.

When combined with the oxygen in the air, these substances can form highly dangerous, potentially explosive atmospheres and even the smallest spark will cause an explosion.



Examples of effective ignition sources which trigger an explosion (DIN EN 1127-1) are:

- **Fire, flames, embers**
- **Hot surfaces**
- **Electrical sparks (electromagnetic)**
- **Electrostatic discharge sparks**
- **Arcs**
- **Lightning**
- **Ionising radiation**
- **Mechanically produced sparks**
(e. g. impact on material combinations aluminium (AL) and steel (ST))
- **Adiabatic compression**

In order to prevent serious personal injury and damage to equipment, the highest possible level of safety must be achieved in such potentially explosive locations. Three levels of explosion protection have been identified:

- **Primary explosion protection**
Avoiding the formation of a potentially explosive atmosphere (often not possible in practice).
- **Secondary explosion protection**
Use of appropriate equipment to prevent possible sources of ignition.
- **Tertiary explosion protection**
Cannot prevent an explosion, but can limit the effects of an explosion (e.g. devices for precise pressure release, explosion suppression systems such as automatic foam extinguishers, etc.).

In order to enhance the level of safety in potentially explosive locations, numerous requirements in the form of laws, regulations, directives and standards etc. have been issued worldwide relating to secondary explosion protection. In the context of globalisation, these have been combined, at least in Europe, into harmonised directives for explosion protection.

Legal position in Europe

In the EU, the so-called ATEX directive regulates explosion protection (ATEX is the abbreviation of ATmosphères EXplosibles).

This directive of the European Parliament and of the Council (Directive 2014/34/EU), which has been in force since 2014, regulates "the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres". The target group includes, amongst others, manufacturers of equipment. This directive applies to areas at risk of gas and dust explosions in both mining and surface operations.

The second ATEX Directive 1999/92/EC covers the minimum regulations for industrial safety in potentially explosive areas. This is intended for the operator.

Equipment Group and Category

It is crucial to classify equipment into equipment groups and categories when assessing whether they are suitable for use in potentially explosive locations:

Equipment group I						
Application	Equipment for use in mining / surface / underground operations					
Category	M1			M2		
Requirement	very high safety level			high safety level		
Equipment group II						
Application	Equipment for use in potentially explosive atmospheres consisting of gas / air or dust / air mixtures, vapours or mist					
Category	1		2		3	
Zone	Zone 0	Zone 20	Zone 1	Zone 21	Zone 2	Zone 22
Substance group	G (Gas)	D (Dust)	G	D	G	D

Zone definitions

Zone	Description	Equipment group	Equipment category	Atmosphere / application
	Danger from firedamp / dust	I	M1, M2	Mining
0	Location in which an explosive atmosphere consisting of a mixture of air and flammable gases, vapours or mist is present continuously, or for long periods or frequently.	II	1G	Gases Vapours Mist
20	Location in which an explosive atmosphere in the form of combustible dust is present continuously, or for long periods or frequently.	II	1D	Dust
1	Location in which an explosive atmosphere consisting of a mixture of air and flammable gases, vapours or mist is likely to occur in normal operation occasionally.	II	2G	Gases Vapours Mist
21	Location in which an explosive atmosphere in the form of a cloud of combustible dust is likely to occur in normal operation occasionally.	II	2D	Dust
2	Location in which an explosive atmosphere consisting of a mixture of air and flammable gases, vapours or mist is not likely to occur in normal operation, but if it does occur, will persist for a short period only.	II	3G	Gases Vapours Mist
22	Location in which an explosive atmosphere in the form of a cloud of combustible dust is not likely to occur in normal operation, but if it does occur, will persist for a short period only.	II	3D	Dust

Types of Electrical Equipment Protection

Equipment and components must be equipped to different protection levels which depend on the machine or system's equipment group and category classifications.

The most common protection levels are:

Ignition protection type to IEC, EN, ISA and NFPA	Symbol	Protection principle	Main application
Increased safety "e" EN 60079-7; ISA 60079-7; IEC 60079-7		Here, additional measures provide a higher level of protection against unacceptably high temperatures and sparks or electrical arcs, both on the internal and external parts of electrical equipment whose normal operation does not involve unacceptably high temperatures, sparks or arcing.	Junction and terminal boxes, control boxes for installing Ex components (which are protected with a different ignition protection type), squirrel-cage motors, light fittings
Flameproof enclosure "d" EN 60079-1; ISA 60079-1; IEC 60079-1		Parts that could ignite a potentially explosive atmosphere are located inside an enclosure which can withstand the pressure of an explosion of the explosive mixture inside and which prevents the transmission of the explosion to the explosive atmosphere surrounding the enclosure.	Switchgears and switchgear systems, command and display devices, controllers, motors, transformers, heaters, light fittings
Pressurised enclosures "p" EN 60079-2; NFPA 496; IEC 60079-2		The formation of a potentially explosive atmosphere inside the enclosure is prevented by an inert gas which is maintained at a pressure greater than that in the surrounding atmosphere. If necessary, the enclosure is constantly flushed with the inert gas to dilute the flammable mixture.	Switchgear and control cabinets, analysis instruments, large motors px = use in Zone 1, 2 py = use in Zone 1, 2 pz = use in Zone 2
Intrinsic safety "i" EN 60079-11; ISA 60079-11; IEC 60079-11		Any equipment used in areas at risk of explosions only contains intrinsically safe circuits. Intrinsically safe circuits are circuits in which no spark or thermal effect occurring under the test conditions laid down in the standard can ignite a certain potentially explosive atmosphere (the test conditions cover normal operation and certain fault conditions).	Measuring and control technology, fieldbus technology, sensors, actuators, filter clogging indicators ia = use in Zone 0, 1, 2 ib = use in Zone 1, 2 ic = use in Zone 2 [Ex ib] = associated electrical apparatus – installation in the safe area

Equipment not covered by ATEX directive

The VDMA Guide states that

- Maintenance units

- Pipe systems

- Pressure gauges

- Pneumatic silencers

- Hydraulic and lubrication filters

are not classed as equipment or components in the context of the ATEX Directive (exceptions are, for example, duplex filters with electrical change-over)

(Source: VDMA Guide on Explosion Protection for Machinery – fluid technology section – Status: 30.06.2003)

However: due to external circumstances, such as ambient conditions over which we as component manufacturers have no control, slight modifications to the filters are, in fact, necessary.

Equipment covered by ATEX directive

Electrical clogging indicators are, however, classified as equipment in the context of the ATEX directive.

They normally require a type examination.

For clogging indicators which are used in intrinsically safe circuits, there is an exception if they can be classified as "simple electrical equipment" (as per DIN EN 60079-14).

What does this mean for our products?

Filters

The primary task of hydraulic filters is to "remove solid particles without electrical energy". According to the ATEX definition, hydraulic filters are not classed as "equipment or components" and do not, therefore, require type examination either.

Issuing a declaration of conformity is not permitted and the production of a manufacturer's declaration (and operating manual) is not mandatory (the customer can carry out his own assessment of the ignition hazard).

Deployment in an ATEX location usually requires a small modification to the filter (e. g. using **Stat-Free® filter elements** to prevent electrostatic charging in the system).

Material combinations using aluminium or steel & cast iron susceptible to corrosion must be avoided.

Plastic surfaces made from non-conductive plastic are only permitted up to a certain size (DIN EN ISO 80079-36).

Clogging Indicators

In intrinsically safe circuits, our "-2GBC" coded clogging indicators (type C and VE) to DIN EN 60079-14 can be used as "simple electrical equipment".

These are slightly modified clogging indicators which are supplied with the product with a manufacturer's declaration and an ATEX specific operating manual.

Caution:

Clogging indicators type D, GC, GW, LZ and VZ are not classed as "simple electrical components" according to DIN EN 60079-14!

In non-intrinsically safe circuits, only type examination approved clogging indicators (with -2GEXDIIC or -EX2G code) can be used!

For safety reasons, filters should have the following equipment:

- Filter elements in the **Stat-Free®** or **Stat-X®** model (these prevent electrostatic charging from occurring in the filter)
- If the filter has an electrical clogging indicator, ATEX specifications for electrical equipment must be complied with:
- Indicate the "2GC" or "2GBC" type of filter under "Supplementary Details"
- Comply with special approval lists (on request)
- Earthing (equalisation of potential) of the filter housing must be provided via the mounting screws



Electrostatic Charging

Electrostatic charging always occurs in conventional glass fibre or synthetic fibre elements. The filter housing and elements should always be constructed out of electrically conductive materials. The necessary equalisation of potential (earthing) must, therefore, be implemented by the system manufacturer or operator (see instructions in the filter's general operating and maintenance instructions).

If you require further information on the subject of electrostatics, please contact us.

Information contained in the model code

According to the ATEX definition, issuing a certificate for the filter is **not necessary**. The necessary special measures must merely be implemented and these are indicated in the model code by putting the required equipment group in the supplementary text (the issuing of a certificate is however contained in the coding).

Here are two examples:

- For filters (without clogging indicators) for the equipment group II 2G and 3G: .../-2GC or
- For filters (with electrical clogging indicators in intrinsically safe circuits) and clogging indicators for the equipment group II 2G and 3G: .../-2GBC

Explanations of the supplementary details contained in the model code:

/-M1 = intended for use in mines Category M1 and M2

/-1GB = suitable for use in Zone 0 and 20 (Category 1) and in Zone 1 and 21 (Category 2) or in Zone 2 and 22 (Category 3), **in gas atmosphere explosion subgroups IIB and IIA and dust explosion subgroups IIIC, IIIB and IIIA according to ATEX Directive 2014/34 EU.**

/-1GC = suitable for use in Zone 0 and 20 (Category 1) and in Zone 1 and 21 (Category 2) or in Zone 2 and 22 (Category 3), **in gas atmosphere explosion subgroups IIC, IIB and IIA and in dust explosion subgroups IIIC, IIIB and IIIA according to ATEX Directive 2014/34 EU.**

/-2GB = suitable for use in Zone 1 and 21 (Category 2) and in Zone 2 and 22 (Category 3), **in gas atmosphere explosion subgroups IIB and IIA and in dust explosion subgroups IIIC, IIIB and IIIA according to ATEX Directive 2014/34 EU.**

/-2GC = suitable for use in Zone 1 and 21 (Category 2) and 2 and 22 (Category 3), **in gas atmosphere explosion subgroups IIC, IIB and IIA and in dust explosion subgroups IIIC, IIIB and IIIA according to ATEX Directive 2014/34 EU.**

/-2GBC = suitable for use in intrinsically safe circuits in Zone 1 and 21 (Category 2) and in Zone 2 and 22 (Category 3), in gas atmosphere explosion groups IIC, IIB and IIA and in dust explosion subgroups IIIC, IIIB and IIIA; Category ib (intrinsic safety) according to ATEX Directive 2014/34 EU.

Examples:

- Equipment group I M1 (without clogging indicator)
DF ON 280 T E 10 A 1.1 /-**M1**-B3-SFREE
- Equipment group II 2G (without clogging indicator)
DF ON 160 T E 10 A 1.1 /-**2GC**-SFREE
- Equipment group II 2G (with electr. clogging indicator)
DF ON 280 T E 10 C 1.1 /-**2GBC**-SFREE

The following pages will help you to select the appropriate filter type.

Return line filters

In-tank mounted filters (without clogging indicator)

Filter type	Size	Housing material	Equipment group								
			Group I	Group II							
				Category M		Category 1		Category 2		Category 3	
				M1	M2	G (Gas) (Zone 0)	D (Dust) (Zone 20)	G (Gas) (Zone 1)	D (Dust) (Zone 21)	G (Gas) (Zone 2)	D (Dust) (Zone 22)
General	For filters made out of aluminium without clogging indicators, a stainless steel indicator plug must be used (VD 0 A.1 /-SO224 or VR 0 A.1 /-SO224)										
RF	30	Plastic elec. conductive	No ATEX approval				-2GC				
	60 – 330	AL	No ATEX approval				-2GC				
	60, 160, 330	SG iron	-2GC								
	660 – 1,300	SG iron	-2GC								
	2,500 – 15,000	ST welded	-2GC								
RFD	60 – 330	AL / ST	No ATEX approval								
	60, 160, 330	SG iron	-2GC								
	660 – 1,300	SG iron	-2GC								
RFM	75 – 185 /-T	AL / plastic elec. conductive	No ATEX approval								
	75 – 185	AL / plastic elec. conductive	No ATEX approval				-2GC				
	210 – 270	AL / plastic not elec. conductive	No ATEX approval								
	330 – 851	AL / plastic elec. conductive	No ATEX approval				-2GC				
RFN	40 – 100 /-T	AL / plastic elec. conductive	No ATEX approval								
	40 – 100	AL / plastic elec. conductive	No ATEX approval				-2GC				
	160 – 630	AL	No ATEX approval				-2GC				
RFND	40 – 100	ST / AL / plastic elec. conductive	No ATEX approval								
	160 – 630	ST / AL / plastic elec. conductive	No ATEX approval								
RKM	80 – 255	ST / AL / plastic elec. conductive	No ATEX approval								
	300 – 800	AL / plastic elec. conductive	No ATEX approval								
SSRF SSRFD	160	Stainless steel	-2GC								

Inline Filters

Filter housing in SG iron / steel (without clogging indicator)

Filter type	Size	Housing material	Equipment group							
			Group I	Group II						
			Category M		Category 1		Category 2		Category 3	
			M1	M2	G (Gas) (Zone 0)	D (Dust) (Zone 20)	G (Gas) (Zone 1)	D (Dust) (Zone 21)	G (Gas) (Zone 2)	D (Dust) (Zone 22)
General	For filters made out of aluminium without clogging indicators, a stainless steel indicator plug must be used (VD 0 A.1 /-SO224 or VR 0 A.1 /-SO224)									
AFLD	122 – 2,702	ST	-2GC							
	123 – 2,703	ST	-2GC							
DF DFF DFG DFP DFPF DF...QE DF...MHE DF...MA DFZ	30 – 4,000	SG iron / ST	-M1	-1GC		-2GC				
DF...KP DF...MP	160 – 1,320	SG iron / ST	-M1	-1GC		-2GC				
DF-SET	30 – 1,320	ST	-M1	-1GC		-2GC				
DFDK	30 – 3,960	SG iron / ST	-M1	-1GC		-2GC				
DFN DFNF	40 – 400	SG iron / ST	-M1	-1GC		-2GC				
EMLF	330 and 660	Stainless steel	Series							
FMND	40 – 400	SG iron / ST	-M1	-1GC		-2GC				
HDF HDFH	300 – 900	SG iron / ST	-M1	-1GC		-2GC				
HFM	75, 95	SG iron / ST	-M1	-1GC		-2GC				

Inline filters

Filter housing in SG iron / steel (without clogging indicator)

Filter type	Size	Housing material	Equipment group							
			Group I	Group II						
			Category M		Category 1		Category 2		Category 3	
			M1	M2	G (Gas) (Zone 0)	D (Dust) (Zone 20)	G (Gas) (Zone 1)	D (Dust) (Zone 21)	G (Gas) (Zone 2)	D (Dust) (Zone 22)
General	For filters made out of aluminium without clogging indicators, a stainless steel indicator plug must be used (VD 0 A.1 /-SO224 or VR 0 A.1 /-SO224)									
DMX	400 – 1,200	SG iron	-2GC							
ILF	1, 2, 3	ST	-M1	-1GC		-2GC				
	4	AL	No ATEX approval				-2GC			
MDF	30 – 660	SG iron	-M1	-1GC		-2GC				
MDF-SET	30 – 330	ST	-M1	-1GC		-2GC				
MFM	35 – 95	SG iron / ST	-M1	-1GC		-2GC				
MFM-SET	35 – 95	ST	-M1	-1GC		-2GC				
MPSSF MPSSF...P HPSSF ACSSF	30 – 330	Stainless steel	Series							
RFL	660 – 1,301	SG iron	-2GC							
RFL	1,300 – 15,000	ST	-2GC							
RFLD	11 – 1,301	SG iron	-2GC							
	1,300 – 15,000	ST	-2GC							
RFLD Cast steel	112 – 1,302	ST	-2GC							
RFLN	1,000 – 6,000	ST	-2GC							
RFLDN	630 – 6,000	ST	-2GC							

Inline filters

Filter housing in aluminium (without clogging indicator)

Filter type	Size	Housing material	Equipment group								
			Group I	Group II							
			Category M		Category 1		Category 2		Category 3		
			M1	M2	G (Gas) (Zone 0)	D (Dust) (Zone 20)	G (Gas) (Zone 1)	D (Dust) (Zone 21)	G (Gas) (Zone 2)	D (Dust) (Zone 22)	
General	For filters made out of aluminium without clogging indicators, a stainless steel indicator plug must be used (VD 0 A.1 /-SO224 or VR 0 A.1 /-SO224)										
FLN	160 – 400	AL	No ATEX approval				-2GC				
FLND	60 – 400	AL / ST	No ATEX approval								
LF	30 – 330 and 660	AL	No ATEX approval				-2GC				
	500	AL / ST	No ATEX approval								
LF-SET	30 – 330 and 660	AL	No ATEX approval				-2GC				
	500	ST	-M1		-1GC		-2GC				
LFF	60, 110, 160, 240	AL	No ATEX approval				-2GC				
LFM	60 – 110	AL	No ATEX approval				-2GC				
	140	AL / ST	No ATEX approval								
LFN LFNF	40-63	AL	No ATEX approval				-2GC				
	100	AL / ST	No ATEX approval								
LPF LPF...DA	35 – 280	AL	No ATEX approval				-2GC				
LPF.../-TH	161 – 281	AL / SG iron	No ATEX approval								
LPF...GGA	161 – 281	AL / SG iron	No ATEX approval								
MF MFD	80 – 180	AL / ST	No ATEX approval								
MTX	100, 200	AL	No ATEX approval				-2GC				
NF	160, 240, 280, 330, 500, 750	AL / ST	No ATEX approval								
	1,310 – 2,610	AL	No ATEX approval				-2GC				
	950 – 2,650	AL	No ATEX approval				-2GC				
NFD	1,300 – 10,440	AL / SG iron	No ATEX approval								
SF	60 – 240	AL	No ATEX approval				-2GC				
SFM	330	AL	No ATEX approval				-2GC				
SFF SPA	100 – 500	AL / plastic	No ATEX approval								

Breather filters

Filter type	Size	Housing material	Equipment group								
			Group I	Group II							
			Category M		Category 1		Category 2		Category 3		
			M1	M2	G (Gas) (Zone 0)	D (Dust) (Zone 20)	G (Gas) (Zone 1)	D (Dust) (Zone 21)	G (Gas) (Zone 2)	D (Dust) (Zone 22)	
General	For filters made out of aluminium without clogging indicators, a stainless steel indicator plug must be used (VD 0 A.1 /-SO224 or VR 0 A.1 /-SO224)										
BDE BDL BDM	15 – 1,000	Plastic	No ATEX approval								
BF	3, 4	ST	No ATEX approval								
	5	ST	No ATEX approval				-2GC				
	52, 8, 9	ST, AL	No ATEX approval								
	10, 30, 7, 72	Plastic	No ATEX approval								
BL	82 and 162	ST	No ATEX approval								
BLT	160	ST	No ATEX approval								
ELF	3, 4	ST	No ATEX approval								
	5	ST	No ATEX approval				-2GC				
	52, 8, 9	ST, AL	No ATEX approval								
	10, 30, 7, 72	Plastic	No ATEX approval								
TC	7 and 75	Plastic, Brass	No ATEX approval								

Clogging Indicators

Return line

Filter type	Signal output	Permitted interface material	Equipment group							
			Group I	Group II						
			Category M		Category 1		Category 2		Category 3	
			M1	M2	G (Gas) (Zone 0)	D (Dust) (Zone 20)	G (Gas) (Zone 1)	D (Dust) (Zone 21)	G (Gas) (Zone 2)	D (Dust) (Zone 22)
VR...B VR...BM	Visual	Aluminium or stainless steel (no SG iron or ST)	No ATEX approval				-2GC			
VR...B/-SO174 VR...BM/-SO174	Visual	ST, SG iron or stainless steel (no aluminium)	-M1-SO174		-1GC-SO174		-2GC-SO174			
VR...C	Electrical	No restriction	No ATEX approval				-2GBC			
VR...C.../-EX2G *	Electrical	No restriction	No ATEX approval				II 2 G Ex d IICT6/T5 (Ex2G in Model Code)	No approval	II 2 G Ex d IICT6/T5 (Ex2G in Model Code)	No approval
VR...E VR...ES	Visual	No restriction	-M1		-1GB		-2GB			
VR...LE VR...LZ	Electrical		No ATEX approval							
VR...D	Visual / electrical		No ATEX approval							
VR...F	Electrical		No ATEX approval							
VR...GC	Visual / electrical		No ATEX approval							
VR...UF	Electrical		Currently, no ATEX approval							
VR...UE	Visual	No restriction	-M1		-1GB		-2GB			
VRD...D	Visual / electrical		No ATEX approval							
VRD...F	Electrical		No ATEX approval							
VRD...UF	Electrical		Currently, no ATEX approval							
VRD...UE	Visual	No restriction	-M1		-1GB		-2GB			

* When purchasing the VD...C/-2GEXDIIC, VR...C/-EX2G or VMF...C/-EX2G indicator, please read the product installation drawing for product advice and information.

Clogging Indicators

Differential pressure

Filter type	Signal output	Permitted interface material	Equipment group							
			Group I	Group II						
			Category M		Category 1		Category 2		Category 3	
			M1	M2	G (Gas) (Zone 0)	D (Dust) (Zone 20)	G (Gas) (Zone 1)	D (Dust) (Zone 21)	G (Gas) (Zone 2)	D (Dust) (Zone 22)
VM ...B VM ...BM	Visual	Aluminium or stainless steel (no SG iron or ST)	No ATEX approval				-2GC			
VM ...C/-SO135	Electrical	Aluminium or stainless steel (no SG iron or ST)	No ATEX approval				-2GBC-SO135			
VM ...D	Visual / electrical		No ATEX approval							
VMF ...B VMF ...BM	Visual	No restriction	No ATEX approval				-2GC			
VMF ...C	Electrical	No restriction	No ATEX approval				-2GBC			
VMF...C /-EX2G*	Electrical	No restriction	No ATEX approval				II 2 G Ex d IICT6/T5 (Ex2G in Model Code)	No approval	II 2 G Ex d IICT6/T5 (Ex2G in Model Code)	No approval
VMF ...D	Visual / electrical		No ATEX approval							
VMF ...F	Electrical		No ATEX approval							
VMF ...LE VMF ...LZ	Electrical		No ATEX approval							
VMF ...UF	Electrical		Currently, no ATEX approval							
VMF ...UE	Visual	No restriction	-M1		-1GB		-2GB			
VD ...B VD ...BM	Visual	No restriction	No ATEX approval		-1GB		-2GC			
VD ...C/-SO135	Electrical	No restriction	No ATEX approval				-2GBC-SO135			
VD ...D	Visual / electrical		No ATEX approval							
VD ...LE VD...LZ	Electrical		No ATEX approval							
VD ...GC	Electronic / analogue		No ATEX approval							
VD ...C/ -2GEXDIIC*	Electrical	No restriction	No ATEX approval				II 2 G Ex d IICT6/T5 (2GEXDIIC in Model Code)	No approval	II 2 G Ex d IICT6/T5 (2GEXDIIC in Model Code)	No approval
V02...VZ	Visual / electrical		No ATEX approval							
V02...VE	Visual / electrical	Aluminium or stainless steel (no SG iron or ST)	No ATEX approval				-2GBC			
V02...V	Visual	Aluminium or stainless steel (no SG iron or ST)	No ATEX approval				-2GC			

An additional differential pressure transmitter for filter monitoring with ATEX, IECEx and cCSA_{US} approval (ignition protection type: flameproof enclosure) is available from HYDAC Electronic GmbH (type: HPT 500, Delta P: 2, 5 and 8 bar).

* When purchasing VD...C/-2GEXDIIC, VR...C/-EX2G or VMF...C/-EX2G indicators, please read the product installation drawing for product advice and information.

HYDAC – Your Partner for the Most Safety Enhancing Products.



With over 9,000 employees worldwide, HYDAC is one of the leading suppliers of fluid technology, hydraulic and electronic equipment.

Our wide range of products, combined with our established expertise in all aspects of hydraulics and lubrication applications, qualify HYDAC to be your professional partner for every aspect of hydraulics. Particularly in the filtration sector, you will profit from the decades of HYDAC experience and development successes.

Our quality and environment certification to ISO 9001/2000 and ISO 18001 denote first class quality and responsible management of our resources.

Global presence

With 48 subsidiaries, and more than 500 sales and service partners, HYDAC maintains close links with its customers.

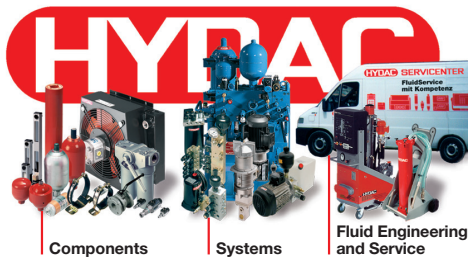
The high proportion of export business of over 80% is further evidence of HYDAC's global presence. In Germany, HYDAC is represented by 13 sales offices. Our production centres are in Germany, the USA, China and Slovakia.

Range of services

Hydac is a world-leading manufacturer of almost all the components and systems required in hydraulic and lubrication technology:

Hydraulic filters, lubrication oil and process filters, condition monitoring tools, sensors, dewatering units, coolers, accumulators, cylinders, pumps, valves and mounting elements.

The crucial advantage for the customer is that we are a one-stop supply – from high-quality components to subsystems, right up to complete turnkey systems, including Fluid Engineering.



Satisfied customers in all sectors

HYDAC is renowned across all industries for being an accomplished problem solver.

To list some examples: automotive industry, construction and agricultural machines, lifting and materials handling technology, rail technology, machine tools, plastic injection moulding machines, hydraulic and mechanical presses, iron and steel industry, power station technology, wind power, process technology, mining machinery, marine and offshore technology, paper industry ...

The HYDAC FluidCareCenter

You can count on top quality and innovation.

Development at HYDAC means designing application-orientated filtration systems based on test results from our research, test laboratories and on-site analyses, whilst taking the requirements of the user and the installer into account.

At the HYDAC FluidCareCenter, we collaborate with our customers to develop innovative projects in a wide range of industries. A skilled development team, using state-of-the-art computer-aided analysis, measuring and testing equipment and test rigs, ensures prompt implementation of the project.



HYDAC FluidCareCenter Sulzbach/Saar



Accumulator Technology 30,000



Filter Technology 70,000



Process Technology 77,000



Filter Systems 79,000



Compact Hydraulics 53,000



Accessories 61,000

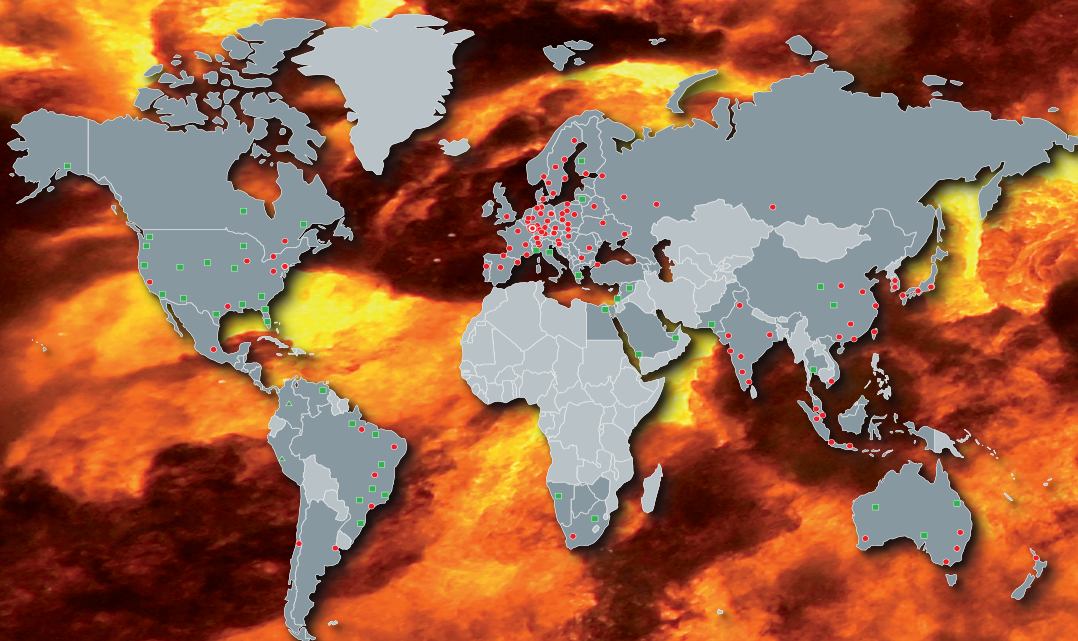


Electronics 180,000



Cooling Systems 5,700

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