



REDVOLTAGE
SOLE AGENT FOR DIETZEL UNIVOLT



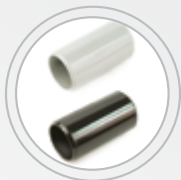
SAFETY FIRST!

HFT[®] Cable Management

**DIETZEL
UNIVOLT**

Cable Management Systems

HALOGENFREE | FLAME RETARDANT | TEMPERATURE RESISTANT



ENDURING SAFETY

PREVENTION PAYS OFF IN THE LONG RUN.

Proper planning begins with making provisions for the protection of human lives and valuable assets. With halogen-free cable management systems from Dietzel Univolt you are always on the safer side.

Your advantages:

- 1 Minimum smoke release in case of fire
- 2 Absolutely halogen-free
- 3 Flame retardant
- 4 Chemically resistant
- 5 Temperature resistant
- 6 Maintenance free
- 7 Easy to install
- 8 Insulating

Hft® - The Novelties In Brief



LSF0H



PVC

LSF0H versus PVC

LSF0H refers to an internationally recognised description of product properties that comply with increased safety requirements. Concerning conduit systems for electrical installations this means specific precaution against fires and consequential damages. Effectively this leads to higher safety for human lives, better protection of valuable assets and safeguarding the continuity of operations.

UNIVOLT HFT® LSF0H Series

Safety in case of fires

Safety in case of fires is also a matter of proper planning. When exposed to fire, plastic materials like PVC release corrosive gases which are not only extremely toxic for human lives, but also attack building stock. Univolt's HFT® branded installation systems are the result of almost 30 years of permanent development. Their improved properties regarding safety and durability comply with the most advanced requirements in modern constructions. HFT® conduit systems are indispensable as a complement to halogen-free cables. Distinctive to conventional plastics they are suitable for a wide range of applications due to their thermal, mechanical and chemical characteristics.

The LSF0H series is the most recent advancement of UNIVOLT's HFT® range and complies with the following relevant safety aspects, as approved by the relevant standards:

- **LS** (= **low smoke**): minimal generation of smoke, no release of corrosive gases
- **F** (= **flame retardant**): impedes the propagation of fires, applicable for temperatures from -25°C to +105°C or beyond
- **0H** (= **zero halogen**): contains absolutely no halogens

Comparison To Steel

Our LSF0H conduits offer the same mechanical resistance against compression and impact forces like steel systems. Additionally, they have several advantages compared to metal cable management systems

100m of protective conduit (Ø 20mm), with same mechanical properties (compression resistance 1250 N).

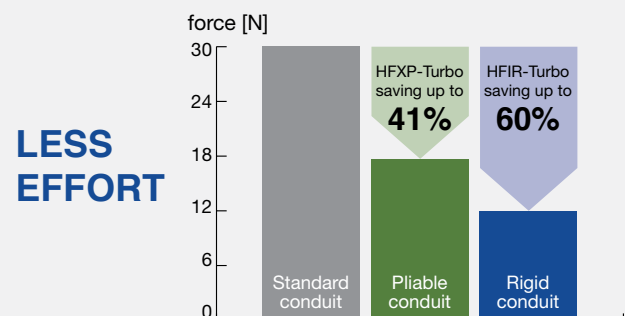
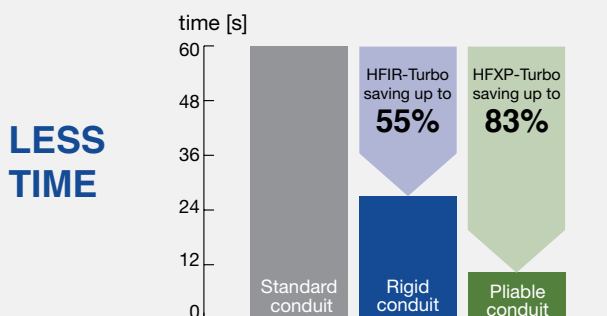


per 100m of protective conduit

- ① Weight saving
- ② Rust proof and maintenance free for life-time
- ③ Easy to install
- ④ Selfinsulating
- ⑤ Flame retardant
- ⑥ UV stabilised
- ⑦ Chemically resistant
- ⑧ Seawater-proof
- ⑨ Low smoke release
- ⑩ Temperature resistant

UNIVOLT Turbo Technology

The Turbo design is a patented feature of installation conduits and has become most favoured by installers. Now it is also available for UNIVOLT's LSF0H series and helps users to save time, effort and money. Compared with conventional conduits the Turbo products lead to lower frictional forces, hence shorter installation times for cabling work.



The Turbo Effect

The Turbo effect is an innovative and patented conduit design developed by Dietzel Univolt that simplifies and enhances installation work. Inserting cables becomes faster and less strenuous without compromising the characteristics of standard conduits. The sectional corrugation reduces the friction between cable and conduit and helps installers to save time and cost - an explicit customer benefit.

Sectional view: conduit with cables Less friction thanks to the Turbo effect:



turbo

HFT® Conduits Next Generation

One of the most important arguments for the use of HFT conduits is their characteristic in emergency situations. Exposed to fire these special materials release 90% less smoke compared to PVC and 80% less compared to conventional halogen-free materials. By this safety is increased in two ways:

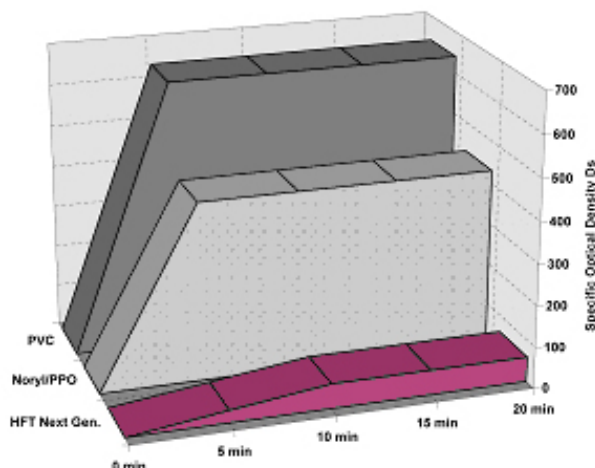
- **People's Safety:** in case of fires the orientation will not be affected by intense smoke release, this eases the evacuation of buildings considerably. Additionally, physical health is not threatened by toxic gases which reduces the risk of suffocation.
- **Asset Protection:** the gases released do not form chemical compounds with other substances.

Sensitive technologies, like IT systems, will not be damaged which guarantees that business operations can continue, especially in cases of smaller fires. Both results in much lower consequential costs related to business interruptions and repairs.

Details about HFT®

HFT® is a registered trademark and refers to installation systems with improved properties compared to conventional cable management. The halogen-free materials used for the production do not contain toxic or corrosive substances thus meeting the increased safety requirements of modern applications. Sourcing and processing the most appropriate and advanced raw materials are a key competence of our technical team.

Optical Smoke Density Acc. to ASTM E 662



Lowest smoke density in plastic installation materials, flame retardant and insulating!

Further Benefits of Univolt's LSF0H Conduits

The new LSF0H series offers considerable improvements in addition to the existing advantages of our conduits:

- Absolute resistance against oils, fats, acids, lyes, etc.
- Especially suitable for installations in concrete
- bendable in cold condition
- Smoke density reduced up to 90% compared to PVC
- UV-stabilised
- Easy to install
- Better than steel

Cable Protection with HFT Univolt Products

NOT ONLY A VITAL CONTRIBUTION TO THE SAFETY OF HUMAN LIVES, IT ALSO MINIMISES CONDUCTION LOSSES, ENSURES THE SMOOTH OPERATION OF SENSITIVE TECHNOLOGIES, PREVENTS ADDITIONAL COSTS FOR REPAIRS AND COMPLIES WITH CURRENT INTERNATIONAL STANDARDS.



Projects: HFT® Installation Systems Worldwide

Areas of application

HFT® systems are ideally suited for installations with an emphasis on the protection of human lives and valuable assets:

- High technology industrial plants, water treatment plants
- Power plants, oil refineries and oil rigs, laboratories
- Railway and underground systems, tunnels, parking houses
- Elevators and emergency plants, transmitting stations
- Hospitals, schools, hotels, shopping centres
- Sports stadiums, conference and event centres
- Museums, theatres, libraries, cultural monuments
- Computing and telecommunication centres
- Airports, railway stations
- Automotives, ships, aircrafts, trains
- Air sampling systems
- Robotic systems and sensitive machinery



FLAGSHIP PRODUCTS

Medium Gauge (750 N)

HFXP Turbo Pro, halogen-free pliable conduit medium gauge, corrugated, with sectional corrugation; black (RAL 9005), in coils of 50m resp. 25m

Material     
 PP-Blend LSF0H EN 3343 > 750 N ✓ -25°C/+105°C
In accordance with: IEC/EN 61386-22 (replaces IEC 60614-2-3, BS 6099), IEC 60423, EN 50642, LSF0H

art	dn	di	ps [m]	pl [m]	ref
HFXP Turbo Pro 16	16,0	10,0	50	2700	087 169
HFXP Turbo Pro 20	20,0	13,5	50	2700	087 170
HFXP Turbo Pro 25	25,0	17,5	50	1600	087 171
HFXP Turbo Pro 32	32,0	23,5	25	675	087 172
HFXP Turbo Pro 40	40,0	30,0	25	500	087 173
HFXP Turbo Pro 50	50,0	38,5	25	300	087 174



Light Gauge (320 N), Highly Flexible

HFXS, halogen-free and highly flexible protective conduit light gauge, corrugated, halogen-free; black (RAL 9005, UV stabilised) or grey (RAL 7001), in coils of 50m resp. 25m

Material     
 PA LSF0H EN 2243 > 320 N ✓* -25°C/+105°C
In accordance with: IEC/EN 61386-22 (replaces IEC 60614-2-5, BS 6099), IEC 60423, EN 50642, LSF0H

art	dn	di	ps [m]	pl [m]	ref	
					grey	black *
HFXS 12	13,0	8,9	50	4500	015 902	023 654
HFXS 16	16,0	10,7	50	2700	012 903	023 655
HFXS 20	20,0	13,5	50	2700	012 904	023 656
HFXS 25	25,0	17,7	50	1600	012 905	023 657
HFXS 32	32,0	24,3	25	675	012 906	023 658
HFXS 40	40,0	30,2	25	500	012 907	023 659
HFXS 50	50,0	39,0	25	300	012 908	023 660
HFXS 63	63,0	50,5	25	175	025 054	023 661



Application: For applications requiring high flexibility and oil resistance such as machine construction, automotive industry, robotics etc.

FLAGSHIP PRODUCTS

FXPM Turbo, pliable conduit medium gauge, corrugated, with additional plastic coating and sectional corrugation; grey (RAL 7037), in coils of 50m resp. 25m

In accordance with: IEC/EN 61386-22 (replaces IEC 60614-2-3, BS 6099), IEC 60423

Material	Code	Mechan.	UV stabil.	Temp.	
PVC-U, PVC-P	3341	> 750 N	△	-25°C/+60°C	
art	dn	di	ps [m]	pl [m]	ref
FXPM-Turbo 16	16,0	10,7	50	2700	086 546
FXPM-Turbo 20	20,0	14,1	50	2700	086 547
FXPM-Turbo 25	25,0	18,3	50	1600	086 548
FXPM-Turbo 32	32,0	24,3	25	675	086 549
FXPM-Turbo 40	40,0	31,2	25	500	086 550
FXPM-Turbo 50	50,0	39,6	25	300	086 551
FXPM-Turbo 63	63,0	50,6	25	175	086 552



FXKVR, double-walled ducting, corrugated exterior, smooth interior; black (RAL 9005), in coils of 50m resp. 25m, including coupler and draw-in wire

Standard: EN 61386-24

Ordering Note: available in other colours upon request

Material	Code	Mechan.	UV stabil.	Temp.		
PE	N 450	> 450 N	△	-30°C/+70°C		
art	dn	di	kg/m	ps [m]	pl [m]	ref
FXKVR 50	50,0	41,0	0,298	50	-	099 018
FXKVR 63	63,0	52,0	0,342	50	-	032 332
FXKVR 75	75,0	61,0	0,387	50	-	026 353
FXKVR 90	90,0	75,0	0,512	50	-	041 343
FXKVR 110	110,0	95,0	0,658	50	-	041 344
FXKVR 125	125,0	107,0	0,735	50	-	041 990
FXKVR 160	160,0	136,0	0,920	25	-	042 514



RIGID

FXKVS, double-walled ducting, corrugated exterior, smooth interior; black (RAL 9005), in bars of 6m, including coupler
In accordance with: IEC/EN 61386-22 (replaces IEC 60614-2-3, BS 6099), IEC 60423

Material	Code	Mechan.	UV stabil.	Temp.		
PE	N 450	> 450 N	△	-30°C/+70°C		
art	dn	di	ps [m]	pl [m]	pl [m]	ref
FXKVS 50	50,0	41,0	-	1170	1170	099 354
FXKVS 63	63,0	52,0	-	624	624	025 751
FXKVS 75	75,0	61,0	-	978	978	025 752
FXKVS 90	90,0	74,0	-	648	648	041 193
FXKVS 110	110,0	93,0	-	402	402	041 205
FXKVS 125	125,0	106,0	-	288	288	041 194
FXKVS 160	160,0	136,0	-	198	198	041 196
FXKVS 175	175,0	148,0	-	270	270	044 965
FXKVS 200	200,0	170,0	-	120	120	041 197



KSR, rigid ducting, with moulded-on coupler; black (RAL 9005), in 3m or 6m standard length

Standard: EN 61386-24

Material	Code	Mechan.	UV-stabil	Temp.
PVC-U	N 450	> 450 N		-5°C/+60°C

in bars of 3m length

art	dn	di	kg/m	ps [m]	pl [m]	ref
KSR 50	50,0	45,4	0,420	3	1419	001 729
KSR 63	63,0	58,2	0,525	3	891	001 730
KSR 75	75,0	69,6	0,740	3	654	001 731
KSR 90	90,0	84,0	1,120	3	414	001 732
KSR 110	110,0	103,2	1,540	3	285	001 733
KSR 125	125,0	117,2	2,100	3	204	001 734
KSR 140	140,0	131,2	2,600	3	159	001 735
KSR 160	160,0	150,2	3,440	3	117	001 736

in bars of 6m length






art	dn	di	kg/m	ps [m]	pl [m]	ref
KSR 50	50,0	45,4	0,420	6	2838	001 737
KSR 63	63,0	58,2	0,525	6	1782	001 738
KSR 75	75,0	69,6	0,740	6	1308	001 739
KSR 90	90,0	84,0	1,120	6	828	001 740
KSR 110	110,0	103,2	1,540	6	570	001 741
KSR 125	125,0	117,2	2,100	6	408	001 742
KSR 140	140,0	131,2	2,600	6	318	001 743
KSR 160	160,0	150,2	3,440	6	234	001 744



RIGID

Medium Gauge (750 N)

HFPRM Turbo, halogen-free rigid conduit medium gauge, with moulded-on coupler and sectional corrugation; light grey (RAL 7035) or black (RAL 9005, UV-stabilised), in 3m standard length

Material     
 PP-Blend LSF0H EN 3343 > 750 N Δ^* -25°C/+105°C






In accordance with: IEC/EN 61386-21 (replaces IEC 60614-2-2, BS 6099), IEC 60423, EN 50642, LSF0H

art	dn	di	ps [m]	pl [m]	ref	
HFPRM Turbo 16	16,0	11,0	111	6216	087 223	087 219
HFPRM Turbo 20	20,0	15,0	111	3996	087 224	087 220
HFPRM Turbo 25	25,0	20,0	57	2280	087 225	087 221
HFPRM Turbo 32	32,0	26,7	57	1368	087 226	087 222
HFPRM Turbo 40	40,0	34,0	21	966	098 784	098 781
HFPRM Turbo 50	50,0	43,5	21	630	098 785	098 782
HFPRM Turbo 63	63,0	55,5	21	378	098 786	098 783



Heavy Gauge (1250 N)

HFBS Turbo, halogen-free rigid conduit heavy gauge, plain ends; black (RAL 9005), in 3m standard length

Material     
 PP-Blend LSF0H EN 4424 > 1250 N ✓ -25°C/+120°C

In accordance with: IEC/EN 61386-21 (replaces IEC 60614-2-2, BS 6099), IEC 60423, EN 50642, LSF0H

art	dn	di	ps [m]	pl [m]	ref	
HFBS Turbo 16	16,0	10,2	111	6216	099 870	
HFBS Turbo 20	20,0	14,4	111	3996	099 871	
HFBS Turbo 25	25,0	18,5	57	2280	099 872	
HFBS Turbo 32	32,0	25,4	57	1368	099 873	
HFBS Turbo 40	40,0	33,0	21	966	099 874	
HFBS Turbo 50	50,0	43,1	21	630	099 875	



FITTING

HFCB, circular junction box, halogen-free; black (RAL 9005, UV stabilised), with 2 mounting lugs, standard mounting screw spacing 50.8mm (2") for conduit diameters 16mm to 25mm resp. 65mm for conduit diameter 32mm, with brass inserts M 4, without lid

Material			
PC-Blend halogen-free		IP 3X	-25°C/+90°C

Ordering Note: other colours available on request

terminal box

art	dim	ps	pl	ref
HFCB 20/1	Ø 65mm, 32mm	25	200	009 646
HFCB 25/1	Ø 65mm, 32mm	25	200	009 647
HFCB 32/1	Ø 80mm, 40mm	10	80	009 648



through box

art	dim	ps	pl	ref
HFCB 20/2	Ø 65mm, 32mm	25	200	009 650
HFCB 25/2	Ø 65mm, 32mm	25	200	009 651
HFCB 32/2	Ø 80mm, 40mm	10	80	009 652



angle box

art	dim	ps	pl	ref
HFCB 20/A	Ø 65mm, 32mm	25	200	009 654
HFCB 25/A	Ø 65mm, 32mm	25	200	009 655
HFCB 32/A	Ø 80mm, 40mm	10	80	009 656



tee box

art	dim	ps	pl	ref
HFCB 20/3	Ø 65mm, 32mm	25	200	009 658
HFCB 25/3	Ø 65mm, 32mm	20	160	009 659
HFCB 32/3	Ø 80mm, 40mm	10	80	009 660



HFCBL, circular box lid, halogen-free; black (RAL 9005), for screw fixing

Material			
PC-Blend halogen-free		IP 3X	-25°C/+90°C

Ordering Note: other colours available on request

art	dim	ps	pl	ref
HFCBL 16-25	Ø 65mm	100	2400	009 665
HFCBL 32	Ø 80mm	100	1200	009 666



FITTING

SGL, straight gland, halogen-free; black (RAL 9005, UV stabilised) or grey (RAL 7001), patented plug-in system for quick-fit assembly, tight connection, with metric thread, acc. to IEC/EN 60423

Material			
PA	halogen-free	IP 54	-25°C/+105°C

Ordering Note: available with Pg or NPT thread on request

art	dn	ps	pl	ref	
				black	grey
SGL 1212	13,0	100	3200	027 797	016 440
SGL 1616	16,0	100	2400	027 798	012 699
SGL 2020	20,0	50	1200	027 799	012 700
SGL 2525	25,0	50	600	027 800	012 701
SGL 3232	32,0	30	360	027 801	012 702
SGL 4040	40,0	20	240	027 802	015 509
SGL 5050	50,0	16	128	027 803	015 508
SGL 6363	63,0	8	64	027 804	043 075



Material			
PA	halogen-free	IP 65	-25°C/+105°C

Ordering Note: available with Pg or NPT thread on request

art	dn	ps	pl	ref	
				black	grey
SGL 1212 S	13,0	100	3200	043 067	023 615
SGL 1616 S	16,0	100	2400	043 068	012 707
SGL 2020 S	20,0	50	1200	043 069	012 708
SGL 2525 S	25,0	50	600	043 070	012 709
SGL 3232 S	32,0	30	360	043 071	012 710
SGL 4040 S	40,0	20	240	043 073	015 914
SGL 5050 S	50,0	16	128	043 074	015 915
SGL 6363 S	63,0	8	64	043 077	043 076



SLN, lock nut, halogen-free; black (RAL 9005, UV stabilised) or grey (RAL 7001), with metric thread acc. to IEC/EN 60423




Ordering Note: available with Pg thread upon request.

Material	Temp.				
PA	-25°C/+105°C				
art	dn	ps	pl	ref	
				black	grey
SLN 12	12,0	100	-	082 004	081 534
SLN 16	16,0	200	8000	026 257	014 206
SLN 20	20,0	200	8000	026 256	013 277
SLN 25	25,0	100	4000	026 255	013 278
SLN 32	32,0	100	2400	026 254	013 279
SLN 40	40,0	30	1200	026 053	015 916
SLN 50	50,0	25	1000	026 054	017 307
SLN 63	63,0	20	480	027 590	027 589



FITTING

KM Turbo, grip type coupler, chlorine-free or halogen-free, for pliable conduits; light grey (RAL 7035), grey (RAL 7001), black (RAL 9005) or orange (RAL 2004), waterproof and tight conduit connector for use in concrete, IP 67

Material			
PE	halogen-free* chlorine-free	IP 67	-25°C/+90°C

art	dn	ps	pl	ref			
				light grey	grey	black	orange*
KM Turbo 16	16,0	100	1200	085 725	085 724	085 726	085 723
KM Turbo 20	20,0	100	800	083 837	083 838	084 051	080 642
KM Turbo 25	25,0	50	600	083 839	083 840	084 052	080 643
KM Turbo 32	32,0	25	300	085 924	085 923	085 926	085 925
KM Turbo 40	40,0	25	200	102 331	102 342	102 335	102 338
KM Turbo 50	50,0	15	120	102 332	102 343	102 336	102 339
KM Turbo 63	63,0	8	64	102 333	102 344	102 337	102 340



HFSM, slip type coupler; light grey (RAL 7035), black (RAL 9005) or white (RAL 9010), for the connection of rigid or pliable conduits

Material		
PC-Blend	halogen-free	-25°C/+90°C

art	dn	ps	pl	ref		
				light grey	black	white
HFSM 16	16,0	100	1200	041 421	020 556	038 571
HFSM 20	20,0	100	800	041 017	020 557	037 036
HFSM 25	25,0	50	600	041 422	020 558	038 572
HFSM 32	32,0	25	300	041 423	020 559	038 573
HFSM 40	40,0	25	200	041 424	020 652	038 574
HFSM 50	50,0	15	120	041 425	020 653	038 575
HFSM 63	63,0	8	64	041 426	020 654	041 420



HFSB, normal bend, slip type; light grey (RAL 7035), black (RAL 9005) or white (RAL 9010), for the connection of rigid conduits in an angle of 90°

Material		
PC-Blend	halogen-free	-25°C/+90°C

art	dn	ps	pl	ref		
				light grey	black	white
HFSB 16	16,0	50	600	065 492	020 825	038 576
HFSB 20	20,0	25	300	065 493	020 826	038 577
HFSB 25	25,0	20	160	065 494	020 827	038 578
HFSB 32	32,0	50	-	065 495	020 828	038 579
HFSB 40	40,0	35	-	065 496	020 829	038 580
HFSB 50	50,0	20	-	065 497	020 830	038 581
HFSB 63	63,0	8	-	065 498	027 261	-



FITTING

HFSBS, spacer bar saddle; black (RAL 9005) or white (RAL 9010)

Material  
 PC-Blend halogen-free -25°C/+90°C

art	dn	ps	pl	ref	
				black	white
HFSBS 16	16,0	100	2400	009 628	041 852
HFSBS 20	20,0	50	1200	009 629	037 033
HFSBS 25	25,0	50	1200	009 630	041 621
HFSBS 32	32,0	50	600	009 631	041 853
HFSBS 40	40,0	25	300	009 632	041 854
HFSBS 50	50,0	25	200	009 633	041 855



HFIB, inspection bend; black (RAL 9005), for rigid conduits

Material  
 PC-Blend halogen-free -25°C/+90°C

Ordering Note: light grey or white version available on request

art	dn	ps	pl	ref
HFIB 20	20,0	50	400	009 643
HFIB 25	25,0	20	240	009 644



HFIE, inspection elbow; black (RAL 9005), for rigid conduits

Material  
 PC-Blend halogen-free -25°C/+90°C

Ordering Note: light grey or white version available on request

art	dn	ps	pl	ref
HFIE 20	20,0	50	400	026 968
HFIE 25	25,0	20	240	026 969
HFIE 32	32,0	25	200	104 457



HFAFT/MBS, adaptor with female thread and male bush; black (RAL 9005) or white (RAL 9010), for the connection of rigid or pliable conduits with distribution and enclosure boxes

Material  
 PC-Blend halogen-free -25°C/+90°C

Ordering Note: available in light grey colour on request

art	dn	ps	pl	ref	
				black	white
HFAFT/MBS 16	16,0	100	2400	009 673	064 493
HFAFT/MBS 20	20,0	100	1200	009 674	037 043
HFAFT/MBS 25	25,0	50	600	009 675	041 465
HFAFT/MBS 32	32,0	20	480	009 676	064 271
HFAFT/MBS 40	40,0	25	300	009 677	-
HFAFT/MBS 50	50,0	10	120	009 678	-



Classification Codes According to EN/IEC 61386: Conduit Systems

Codification Number	DIGIT OF THE CLASSIFICATION CODE					
	1	2	3	4	5	6
	COMPRESSION RESISTANCE	IMPACT RESISTANCE	MINIMUM TEMPERATURE RESISTANCE	MAXIMUM TEMPERATURE RESISTANCE	RESISTANCE TO BENDING	ELECTRICAL PROPERTIES
0	none declared	none declared	none declared	none declared		none declared
1	125N	0,5J	+5°C	+60°C		
2	very light	very light			rigid	conductive
3	320 N	1J	-5°C	+90°C		
4	light	light			pliable	insulating
5	750 N	2J	-15°C	+105°C		
6	medium	medium			pliable, self recovering	conductive and insulating
7	1250 N	6J	-25°C	+120°C		
8	heavy	heavy			flexible	
9	4000 N	20,4J	-45°C	+150°C		
0	very heavy	very heavy				
1				+250°C		
2						
3				+400°C		
4						
5						
6						
7						

Example: HFXP EN 3343

The four digit code refers to the classification which can be found under each individual article in this catalogue. (see also explanation on the right).

DIGIT OF THE CLASSIFICATION CODE							
7	8	9	10	11	12	13	
RESISTANCE TO INGRESS OF SOLID OBJECTS	PROTECTION AGAINST INGRESS OF WATER	CORROSION RESISTANCE	TENSILE STRENGTH	RESISTANCE TO FLAME PROPAGATION	SUSPENDED LOAD CAPACITY	FIRE EFFECTS	
	non-protected		non declared		none declared		under consideration
			100 N		20 N, 48h		
	dripping water	low inside and outside	very light	non-flame propagating	very light		
			250 N		30 N, 48h		
	dripping water tilted 15°	medium inside and outside	light	flame propagating	light		
>2,5 mm			500 N		150 N, 48h		
	spraying water	medium inside, high outside	medium		medium		
>1,0 mm			1000 N		450 N, 48h		
	splashing water	high inside and outside	heavy		heavy		
			2500 N		850 N, 48h		
dust protected	water jetting		very heavy		very heavy		
dust tight	powerful water jetting						
	temporary immersion effects						

Symbols: product properties



LSF0H
Halogen-Free
Chlorine-Free



Classification



Compression
Resistance



UV-Stability



Temperature

Chemical Resistance of Plastic Materials

Chemical Substances	°C	Polyvinylchloride	Polyethylene/Polypropylene	Polycarbonate	Polyamide	Polyphenylenether/Polyphenyleneoxide	Chemical Substances	°C	Polyvinylchloride	Polyethylene/Polypropylene	Polycarbonate	Polyamide	Polyphenylenether/Polyphenyleneoxide
		PVC	PE/PP	PC	PA	PPE/PPO			PVC	PE/PP	PC	PA	PPE/PPO
Acetaldehyde, aqueous (40%)	40	!	✓	-	!	!	Glycerine, aqueous	60	✓	✓	!	✓	✓
Acetic acid (<10%)	40	✓	✓	✓	!	!	Hydrochloric acid (weak)	40	✓	✓	!	-	ü
Acetic acid (10% - 85%)	60	✓	✓	-	-	!	Hydrochloric acid (concentated)	60	✓	✓	-	-	!
Acetic acid (85% - 95%)	40	✓	✓	-	-	!	Hydrofluorosilic acid, aqueous (<32.5%)	60	✓	✓	✓	-	!
Acetic acid (>95%)	20	✓	✓	-	-	-	Hydrofluoric acid, aqueous (<40%)	20	✓	ü	-	-	!
Acetone (traces)	20	-	ü	-	ü	-	Hydrogen (100%)	60	✓	✓	✓	✓	✓
Ammonia, aqueous (20%)	40	✓	✓	-	✓	!	Hydrogen peroxide (20%)	20	✓	✓	!	!	-
Ammonia, dry	60	✓	✓	-	ü	!	Hydrogen sulphide, dry or humid	60	✓	✓	!	!	!
Ammonium fluoride (2%)	20	✓	!	!	-	!	Hydrogen sulphide, aqueous	40	✓	✓	!	!	!
Aniline (saturated)	60	!	-	-	!	-	Ketone	-	-	-	-	ü	-
Arsenic acid (<20%)	60	✓	✓	✓	!	-	Lactic acid, aqueous (1%)	40	✓	✓	✓	✓	✓
Beer	60	✓	✓	!	✓	✓	Methyl alcohol, aqueous (all)	40	✓	✓	-	ü	ü
Benzene	20	-	!	-	ü	-	Mineral oil	20	✓	✓	!	✓	!
Bleaching agent (13%)	40	✓	✓	!	!	✓	Nitric acid (<30%)	40	✓	✓	-	-	!
Borax, aqueous	60	✓	✓	!	!	!	Nitric acid (30% - 45%)	45	✓	✓	-	-	-
Bromic acid, aqueous (10)	20	✓	✓	-	-	!	Nitric acid (50% - 60%)	20	✓	!	-	-	-
Butane, gaseous		ü	-	✓	✓	!	Nitric gases, dry or humid (weak)	60	!	!	-	!	!
Carbonic acid, dry	40	✓	✓	✓	✓	!	Oils and Fats (vegetable and organic)	60	✓	✓	-	ü	-
Carbonic acid, dry or humid	40	ü	ü	!	!	!	Oxalic acid, aqueous (10%)	40	✓	✓	✓	!	!
Carbon tetrachloride	20	-	-	-	ü	-	Oxalic acid, aqueous (concentrated)	60	✓	✓	-	-	!
Carbon disulphide	20	!	!	-	!	-	Oxygen	60	✓	✓	!	✓	✓
Caustic soda (<40%)	40	✓	ü	-	ü	ü	Ozone	20	✓	!	-	!	!
Caustic soda (40% - 60%)	60	ü	ü	-	ü	ü	Permanganate (<6%)	20	✓	✓	!	-	!
Cement, dry	20	ü	ü	ü	ü	ü	Petrol, Normal/Premium	60	✓	!	-	ü	-
Cement, mixed	20	✓	✓	-	ü	ü	Petroleum	20	✓	✓	!	✓	-
Chloric gas, dry or humid	20	!	!	-	-	-	Phenol, aqueous (<90%)	45	!	!	-	-	-
Chloric water	20	!	-	-	-	-	Phosphoric acid, aqueous (<30%)	40	✓	✓	-	-	!
Chlorinated hydrocarbons		-	-	-	ü	-	Phosphoric acid, aqueous (<30%)	60	✓	✓	-	-	!
Chlorosulfuric acid (100%)	20	!	!	-	-	-	Potash lye, aqueous (<40%)	40	ü	ü	-	ü	ü
Chromium acid, aqueous (<50%)	50	✓	✓	-	-	-	Potash lye (40% - 50%)	60	✓	✓	-	ü	ü
Chromium acid (20%)		!	!	✓	-	-	Potassium sodium lye (<40%)	40	✓	✓	-	ü	ü
Chromosulfuric acid (20%)		!	!	-	-	-	Potassium sodium lye (40% - 50%)	60	✓	✓	-	ü	ü
Citric acid (all)	60	✓	✓	✓	✓	!	Propane, liquid		ü	-	✓	✓	!
Cresol, aqueous (<90%)	45	!	!	-	-	-	Salt solution (all)	40	✓	✓	✓	✓	✓
Cupric sulfate (all)	60	✓	✓	✓	!	!	Seawater	40	✓	✓	!	✓	✓
Diesel oil	20	✓	✓	!	ü	-	Sulfur dioxide, aqueous (all)	40	✓	✓	!	!	!
Developer (photographic)	40	✓	✓	!	✓	!	Sulfuric acid, dry or humid (all)	60	✓	✓	!	!	!
Dextrine (18%)	20	✓	✓	!	✓	!	Sulfuric acid, aqueous (<40%)	40	✓	✓	!	-	ü
Ester		-	-	-	ü	ü	Sulfuric acid, aqueous (40% - 80%)	60	ü	ü	-	-	!
Ethyl alcohol, aqueous (<40%)	40	✓	✓	!	✓	✓	Sulfuric acid, aqueous (80% - 90%)	40	✓	✓	-	-	!
Ethyl ether	20	-	!	!	✓	-	Sulfuric acid, aqueous (90% - 96%)	20	✓	✓	-	-	!
Fatty acid	20	✓	!	!	✓	!	Sodium chloride solution (weak)	40	✓	✓	✓	✓	✓
Fixing bath	40	✓	✓	!	✓	!	Tartaric acid (10%)	60	✓	✓	✓	✓	!
Fluorochlorinated Hydrocarbons		✓	!	✓	✓	-	Urine	40	✓	✓	✓	✓	✓
Formaldehyde, aqueous (all)	30	✓	✓	!	✓	-	Water	60	✓	✓	✓	✓	✓
Formic Acid (<30%)	40	✓	✓	!	-	!	Xylene (100%)	20	-	!	-	ü	-
Formic Acid (concentrated)	20	✓	✓	-	-	!	Zinc chloride, aqueous (all)	60	!	✓	!	-	!
							Zinc sulfate, aqueous (weak)	60	✓	✓	!	-	!

List of Symbols:

- ✓ The parts are resistant against chemical attack under conventional laying conditions
- ! The parts are partially resistant against chemical attack under conventional laying conditions. It is strongly advised to investigate the actual conditions very carefully, resp. to contact UNIVOLT for tests.
- The parts are not resistant against chemical attack.

Why Use HFT®?



167
PEOPLE KILLED

OIL PLATFORM
DESTROYED BY FIRE



3 YEARS
CLOSED DUE TO FIRE

MOUNT BLANC TUNNEL
FIRE INFERNO



£50 MILLION
EURO DAMAGE

WINDSOR CASTLE
ON FIRE

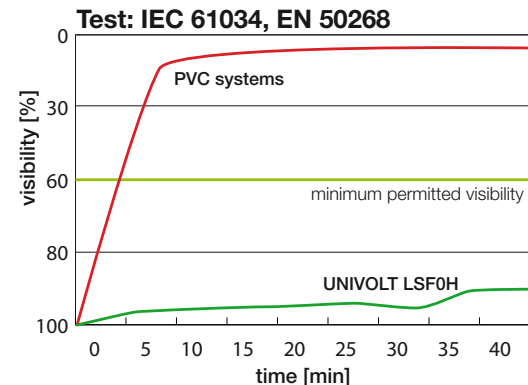
Comprehensive provision and protection:

Safety for human lives deserves the highest priority in fire protection matters. Generating less gases and fumes, LSF0H conduits improve orientation and evacuation in case of fires. Additionally, this minimises the danger of intoxication or suffocation which accounts for most casualties.

Protection of valuable assets is crucial for the prosperity of modern business. Using LSF0H systems reduces the risk of negative impacts on building stock, sensitive technologies and information systems caused by toxic and corrosive gases.

Continuity of operations is an underestimated cost factor. Even minor fires can lead to shutdowns or significant disturbances, which usually result in substantial costs beyond quantification. Meanwhile, several industries have recognised the importance of this issue and apply LSF0H criteria for their installations.

Smoke Emission, 3m Cube Test



Dramatically less smoke formation: UNIVOLT LSF0H conduits top IEC 61034 tests with excellent results.

Safety matters:



**HIGHER SAFETY
FOR HUMAN LIVES**



**BETTER PROTECTION
OF VALUABLE ASSETS**



**SAFEGUARDING CONTINUITY
OF OPERATIONS**

**IF HUMAN LIVES ARE AT RISK,
THERE IS NO SECOND CHANCE.**



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