

Centrifugal fans made of plastic



energy-efficient
corrosion-resistant
weather-proof



Index



Centrifugal fans made of plastic

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HF - Centrifugal fans
Type series HF R ...-15 / 17 D

Advantages

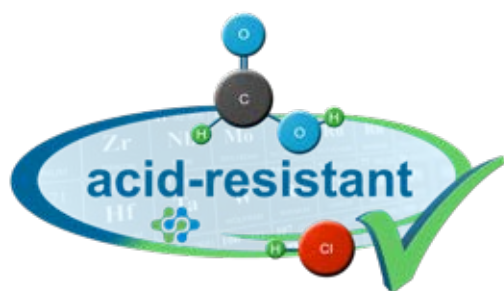
- Corrosion-resistant
- Energy-efficient
- Weather-proof
- Compact design
- Finely graduated sizes
- Fast availability of standard variants
- Inlet and outlet side with same diameters
- Wide range of accessories

Design

- Housing made of UV-resistant PEs
- Impeller made of PPs as standard
- Motor outside the airflow
- No metal parts in the air flow
- Use of different motors (Ex) possible

Application

- Optimal for the extraction of corrosive gases from laboratory to galvanic exhaust air
- Handling of explosive atmospheres from Ex zones 2 and 1



Repair switch
P. 80



Motor cover
P. 74



Sound enclosure
P. 75



Fans optionally available
for Ex-Zone!
P. 84

EU Regulation No. 327/2011
to implement the ErP Directive
2009/125/EC



HLU fans in accordance with EU Regulation No. 327/2011 for the implementation of the Ecodesign Directive ErP 2009/125/EC

The **ErP Directive**, also referred to as the Ecodesign Directive, defines mandatory minimum requirements for the efficiency of energy-related products in order to continuously enhance their performance.

ErP stands for “Energy-related Products” and includes all devices and systems that consume energy during operation.

The primary objective is to reduce energy consumption, thereby making a sustainable contribution to environmental protection.

EU Regulation No. 327/2011, which defines efficiency threshold values for input powers ranging from 125 W to 500 kW, is particularly relevant for fans.

Advantages of ErP-compliant fans

- **Energy savings:**
High efficiency levels reduce electricity consumption and therefore operating costs.
- **Government grants for investments:**
Improved efficiency often qualifies for BAFA or KfW grants in Germany
- **Sustainable image:**
Reduced energy requirements lower CO₂ emissions and contribute to environmental protection.

Funding opportunities from BAFA and KfW in Germany

Our ErP-compliant fans fulfill the requirements to benefit from funding programs offered by the Federal Office for Economic Affairs and Export Control (BAFA) or KfW Development Bank. These programs support investments in energy-efficient technologies through grants or low-interest loans.

To ensure your application process is quick and hassle-free, we provide you with the fully completed proof of eligibility in accordance with all requirements. This document includes all relevant data, such as:

- Fan efficiency rating
- Electrical input power
- Measurement category and efficiency

Take advantage of these attractive financial incentives while sustainably reducing your operating costs with energy-efficient technology.



EU Regulation No. 327/2011
to implement the ErP Directive
2009/125/EC

Technology for maximum energy efficiency: ErP-compliant fans

Fan

- Direct drive with backward curved blades with housing
- Also for toxic, highly corrosive and/or flammable media



Efficient motor

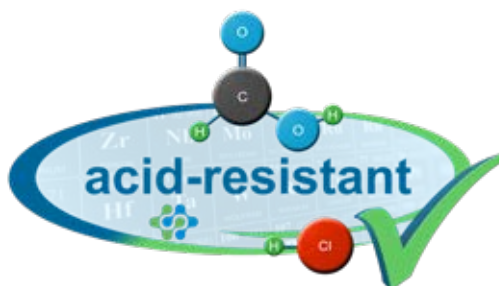
- Motors in IE3 or IE4 standard for reduced power consumption
- A frequency converter enables demand-based speed control and increases operational flexibility
- EC motors with integrated electronics in IE5 achieve exceptionally high energy efficiency, especially under partial-load conditions

Impeller

- Backward curved blades made of plastic
- Optimised blade geometry for high efficiency and reduced operating noise

Documentation

- Extensive product information (e.g. efficiency level, power consumption, measurement category) is available to quickly verify eligibility for funding



Specification

HF - centrifugal fan direct driven

complies with the [European Ecodesign Directive ErP](#)

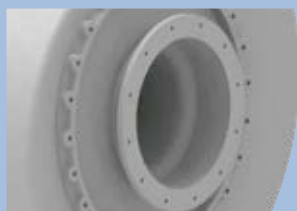
Corrosion resistant plastic radial fan with PEs housing, RAL 7036, sintered, single inlet, inlet nozzle with seal as inspection opening, easy removal, condensate pipe at lowest point of the housing, splinter protection according to accident prevention rules as plastic coated wire mesh.

Impeller with backward curved blades, statically and dynamically balanced, quality of balancing at least to G 6.3 (DIN ISO 21940-11), mounted with taper lock-bush on motor shaft.

Fan frame in strong, welded steel construction, galvanized, with motor support plate. Fan frame suitable for mounting the housing with impeller and motor.

Manufacturer	: HLU	
Type	: HF R ... - .. D DS1	
Housing-material	: PEs	
Impeller-material	: PPs	
Housing position	: ...	
Inlet diameter	: ...	mm
Medium	: exhaust air	
Volume flow	: ...	m ³ /h
Total pressure difference	: ...	Pa
Static pressure difference	: ...	Pa
Sound pressure level Lp2A(1 m)	: ...	dB(A)
SFP	: ...	W/(m ³ /s)
Motor power	: ...	kW
Voltage	: ...	V
Frequency	: ...	Hz
Rated current	: ...	A
Enclosure / motor protection	: IP 55 / PTC	

Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

Specification

HF - centrifugal fan belt driven

Corrosion resistant plastic radial fan with PEs housing, RAL 7036, sintered, single inlet, inlet nozzle with seal as inspection opening, easy removal, condensate pipe at lowest point of the housing, splinter protection according to accident prevention rules as plastic coated wire mesh.

Impeller with backward curved blades, statically and dynamically balanced, quality of balancing at least to G 6.3 (DIN ISO 21940-11), mounted with taper lock-bush on shaft of flanged double bearing.

Fan frame in strong, welded steel construction, galvanized, with motor support plate and with belt guard.

Fan frame suitable for mounting the housing with impeller, belt drive and motor.

Manufacturer	: HLU	
Type	: HF R ... - .. R DS1	
Housing-material	: PEs	
Impeller-material	: PPs	
Housing position	: ...	
Inlet diameter	: ...	mm
Medium	: exhaust air	
Volume flow	: ...	m ³ /h
Total pressure difference	: ...	Pa
Static pressure difference	: ...	Pa
Schalldruckpegel Lp2A (1 m)	: ...	dB(A)
SFP	: ...	W/(m ³ /s)
Motor power	: ...	kW
Voltage	:	V
Frequency	:	Hz
Rated current	: ...	A
Enclosure / motor protection	: IP 55 / PTC	



Repair switch
P. 80



Motor cover
P. 74



Sound enclosure
P. 75



Fans optionally available
for Ex-Zone!
P. 84

Specification

HF - centrifugal fan with direct drive

Version with EC-motor

complies with the [European Ecodesign Directive ErP](#)

Corrosion resistant plastic radial fan with UV-resistant PEs housing, RAL 7036, sintered, single inlet, inlet nozzle with seal as inspection opening, easy removal, condensate pipe at lowest point of the housing, splinter protection according to accident prevention rules as plastic coated wire mesh.

Impeller with backward curved blades, statically and dynamically balanced, quality of balancing at least to G 6.3 (DIN ISO 21940-11), mounted with taper lock-bush on motor shaft. Fan frame in strong, welded steel construction, galvanized, with motor support plate.

Fan frame suitable for mounting the housing with impeller and the driving unit. Driving unit consisting of highly efficient EC-motor and lockable safety switch.

Manufacturer	: HLU	
Type	: HF R ... - .. D (DS1) EC	
Housing material	: PEs	
Impeller material	: PPs	
Housing position	: GR ...	
Inlet diameter	: ...	mm
Medium	: exhaust air	
Volume flow	: ...	m ³ /h
Total pressure difference	: ...	Pa
Static pressure difference	: ...	Pa
Sound pressure level Lp2A (1 m)	: ...	dB(A)
SFP (specific fan power)	: ...	W/(m ³ /s)
Motor power	: ...	kW
Voltage	: 230	V
Frequency	: 50	Hz

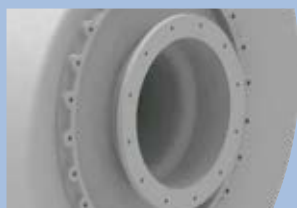
Accessories for each fan:

1 piece potentiometer IP67, fitted, wired, with adjusting scale 1 - 10 for steplessly speed setting, factory-set to the operating point

1 piece repair switch IP66, fitted, wired, with two auxiliary contacts (1x NO, 1x NC)

1 set sleeve and vibration dampers made of rubber

Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72



HF - centrifugal fans with
direct drive | EC-motor
- complies with ErP

Advantages

- Simple and safe application and installation
- Easy connection (Plug & Play)
- High efficiency
- Low power consumption
- Optimal integrated monitoring function
- Infinitely variable speed
- Compact design
- No additional parts required

Design

- Concept based on the tried and tested series HF R ... 15 / 17 D
- EC drive motor outside of the airflow
- Speed controller and repair switch completely wired
- Electronics and engine perfectly coordinated with each other
- Analog control possible
- Single-phase AC operation

Application

- Movement of air and corrosive gases
- Movement of air of explosive atmospheres from Ex Zone 2
- Energy sensitive applications
- Plant upgrade work



Repair switch
P. 80



Motor cover
P. 74



Sound enclosure
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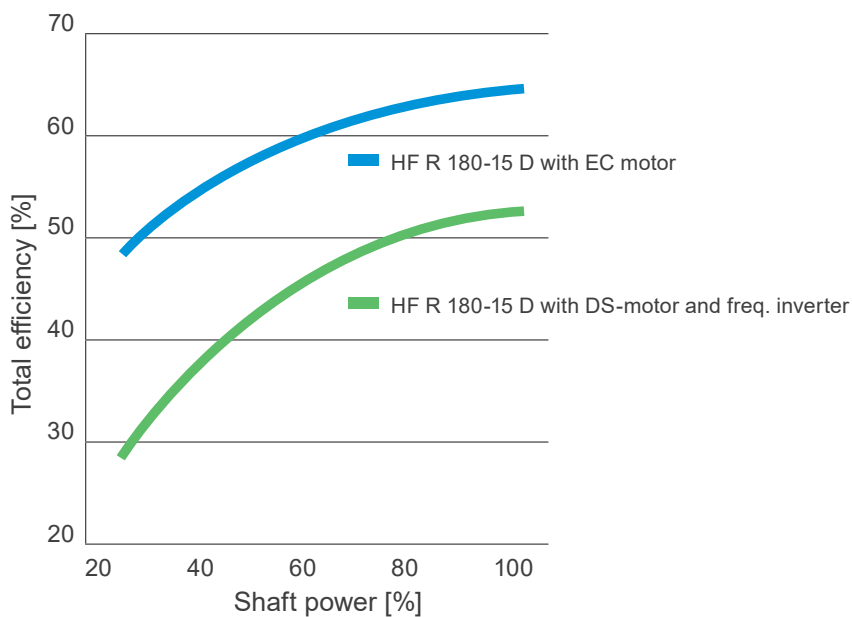
Fans optionally available
for Ex-Zone!
P. 84

Thermoplastic centrifugal fans with EC-motor

HF - centrifugal fans with direct drive | EC-motor
- complies with ErP



Comparison of efficiencies



Potentiometer

The simplest and fastest way to change speed and adjust the operating data.

The manual speed adjuster is mounted on the fan at the factory and set at the desired operating point.



Modbus RTU

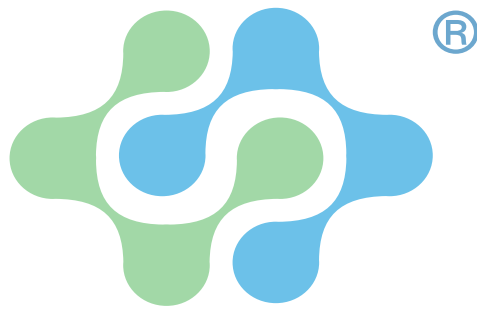
Motors are available with the tried and tested Modbus interface RS485, for the full integration into networked system controls. All tasks such as measuring, controlling, switching and monitoring can be carried out according to individual requirements via this bus system.



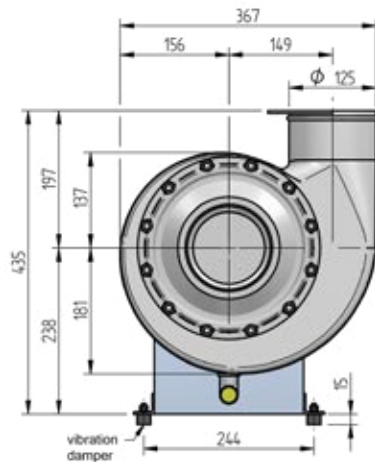
Why plastic?

- Durable
- Corrosion-resistant
- Resistant to chemicals
- High ductility
- Wide spectrum of materials

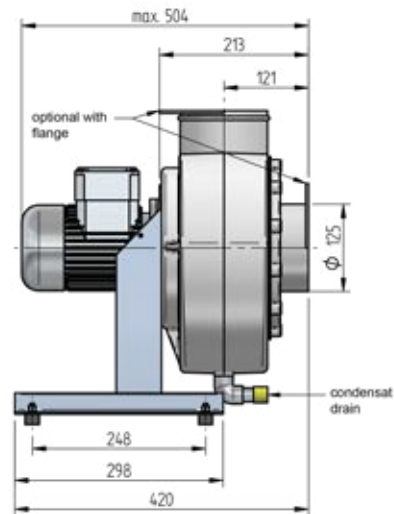
www.hlu.eu



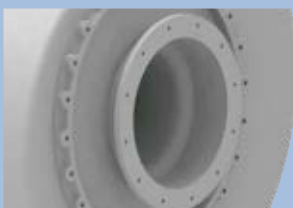
HF - Centrifugal fan Type series HF R ...-15 D



Direct drive



Accessories:


Flange connection
P. 71

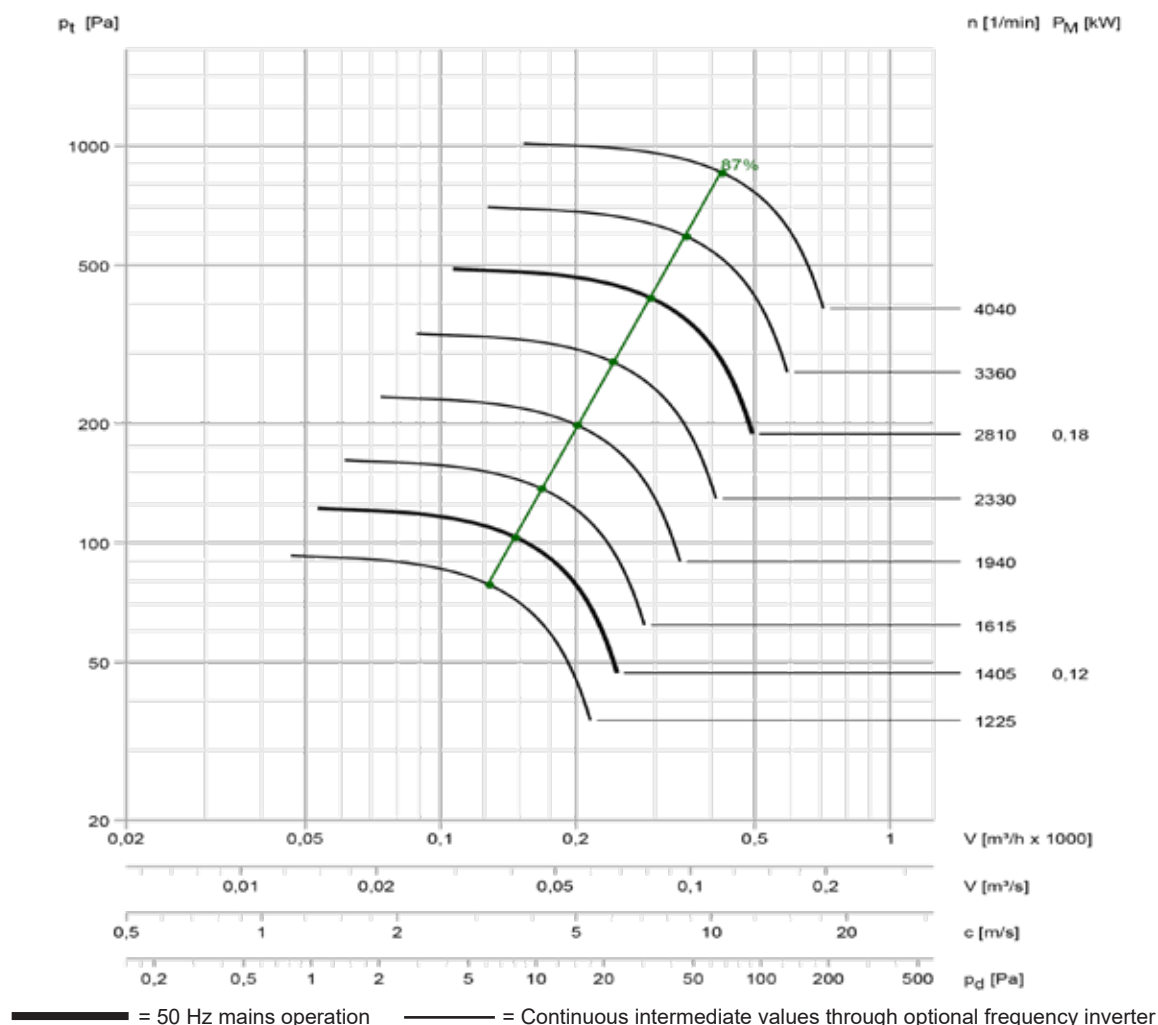
Standard
shaft seal
P. 72

Shaft seal
Viton/Hastelloy
P. 72

Protection grid
P. 72

HF R 125-15 D DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
4040	81	81	80	78	72	67	59	50	63
3360	77	77	76	72	67	61	53	44	58
2810	74	73	72	67	62	55	47	38	53
2330	70	69	67	62	56	49	41	31	48
1940	66	64	62	57	51	44	35	24	43
1615	62	61	57	52	45	38	28	18	38
1405	59	58	53	48	41	33	24	13	34
1225	56	54	49	44	37	29	19	8	31



Repair switch
P. 80



Motor cover
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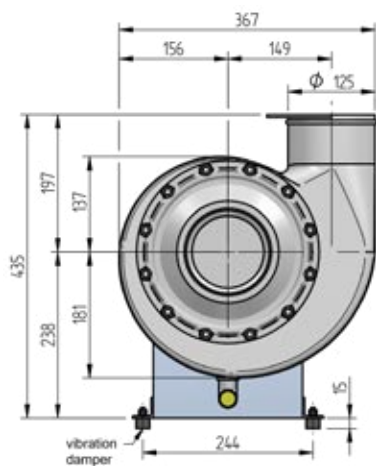


Sound enclosure
P. 75

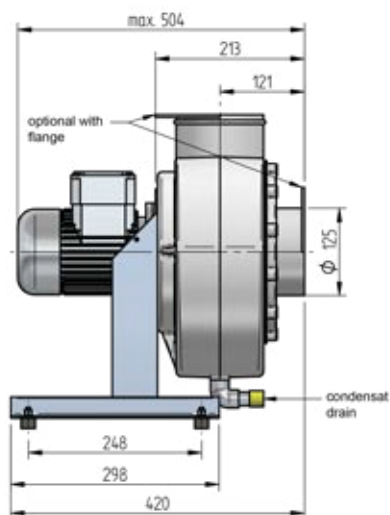


Fans optionally available
for Ex-Zone!
P. 84

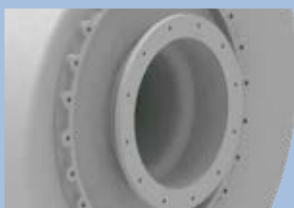
HF - Centrifugal fan
Type series HF R ...-17 D
optional for ATEX zone 1
in GR ...



Direct drive



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



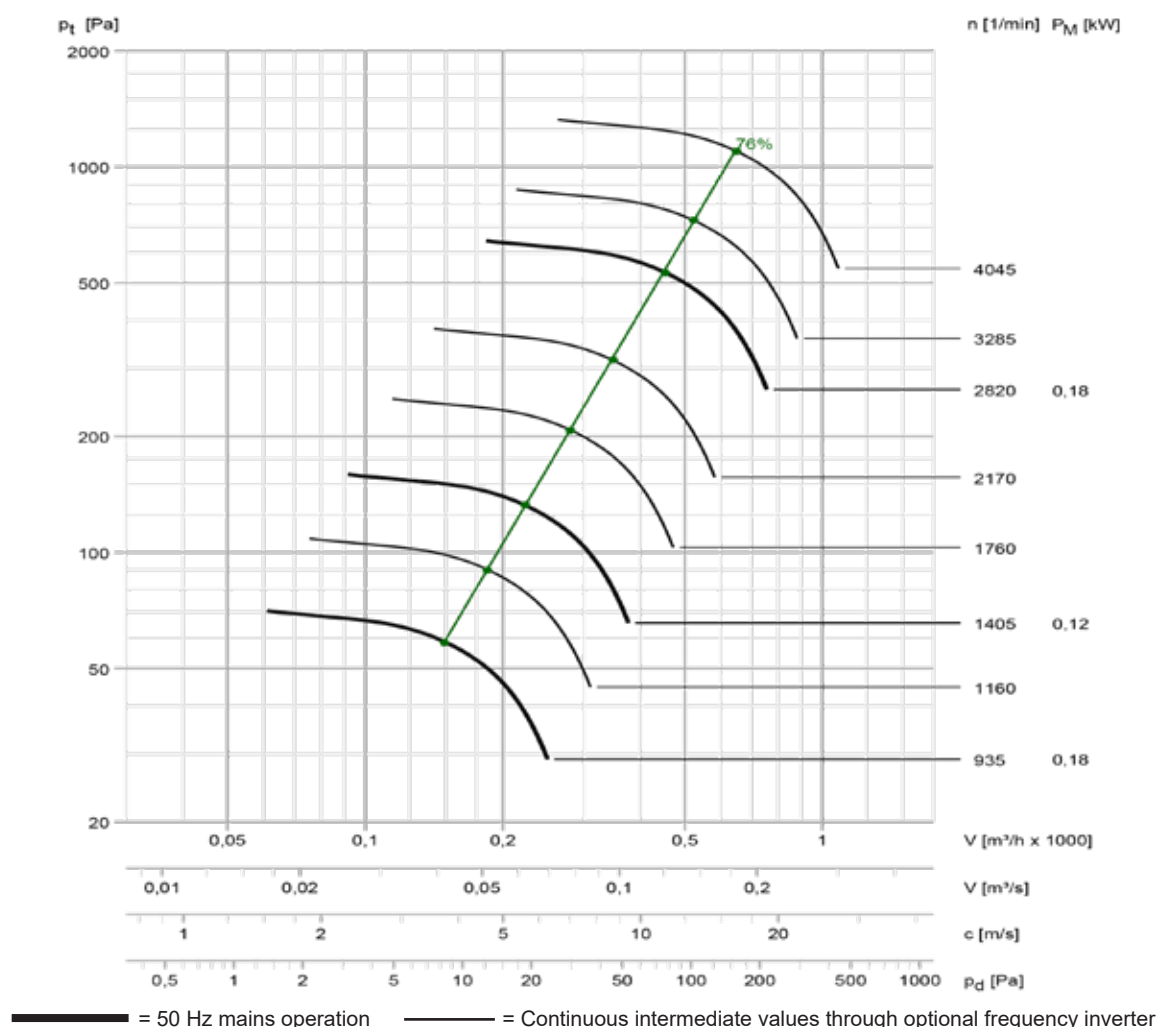
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 125-17 D DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
4045	91	91	90	98	85	82	77	72	80
3285	85	85	94	82	79	75	70	64	72
2820	82	81	90	78	74	70	65	59	68
2170	76	75	84	71	67	63	58	51	61
1760	70	79	67	64	60	56	50	43	52
1405	65	74	61	58	54	49	43	36	46
1160	61	69	57	53	49	43	37	30	41
935	56	64	51	47	43	37	31	23	36



Repair switch
P. 80



Motor cover
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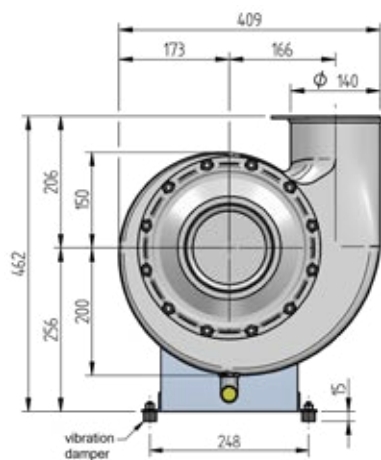


Sound enclosure
P. 75

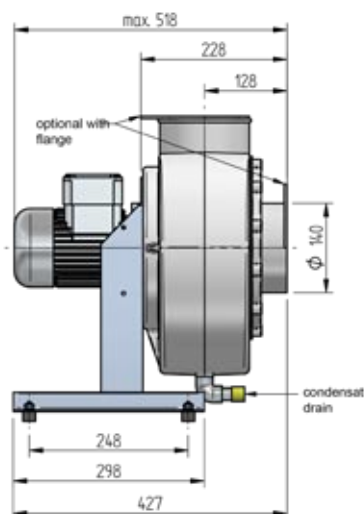


Fans optionally available
for Ex-Zone!
P. 84

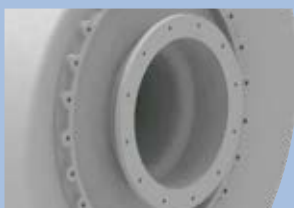
HF - Centrifugal fan
Type series HF R ...-15 D



Direct drive



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



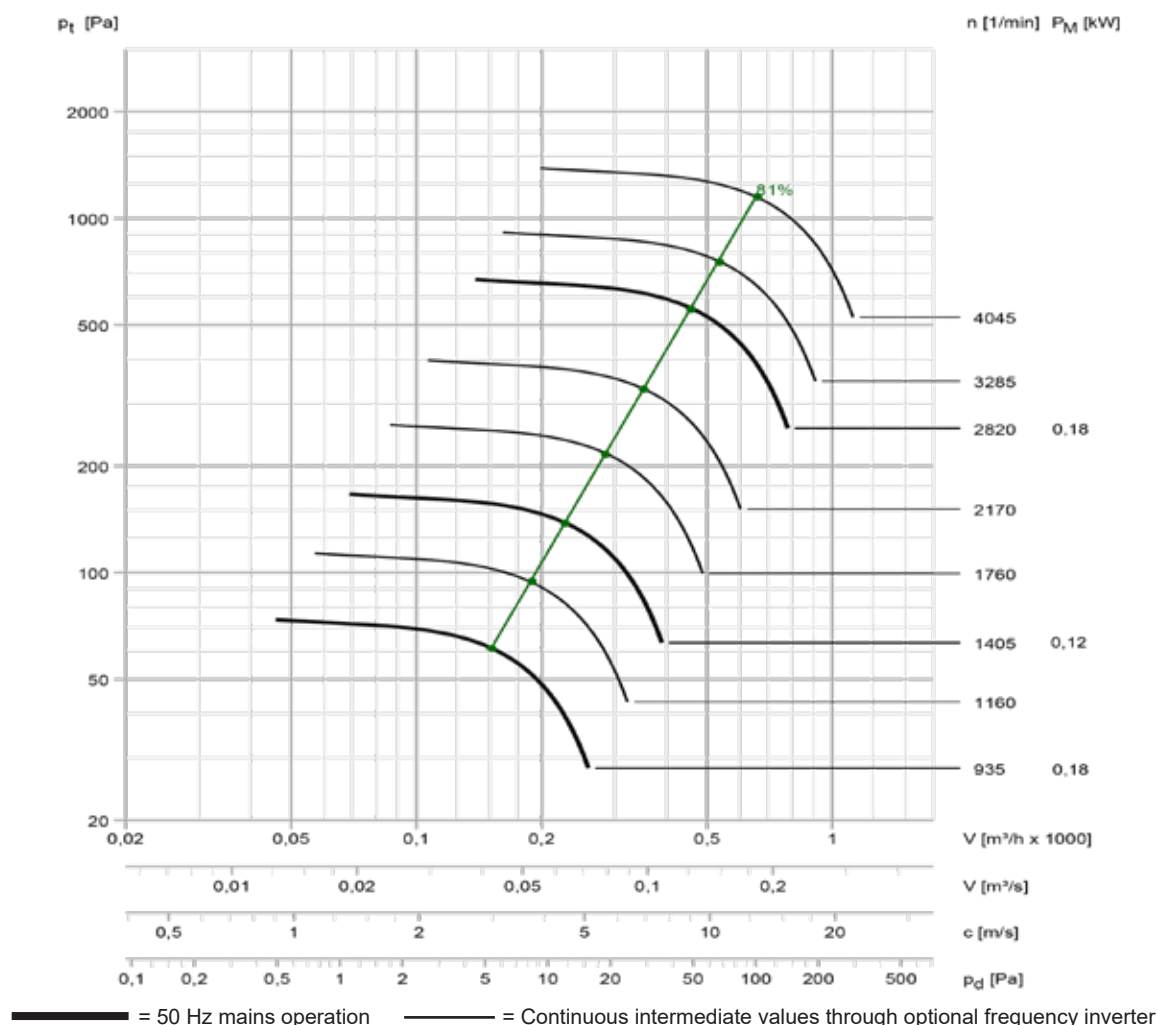
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 140-15 D DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
4045	88	88	86	84	79	73	6	57	69
3285	83	83	82	77	73	66	59	49	63
2820	80	79	78	73	68	62	54	44	59
2170	75	73	71	66	61	53	45	35	52
1760	70	69	65	60	54	47	38	27	46
1405	65	64	59	54	47	39	30	19	40
1160	61	59	54	49	42	33	23	12	35
935	56	54	49	43	35	26	16	4	30



Repair switch
P. 80



Motor cover
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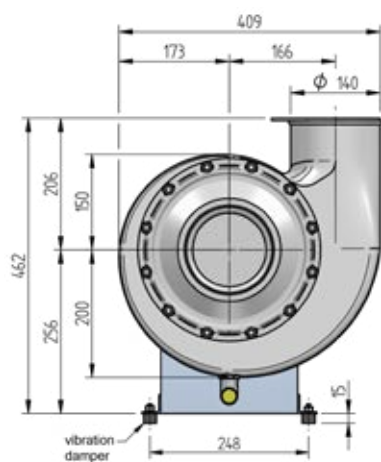


Sound enclosure
P. 75

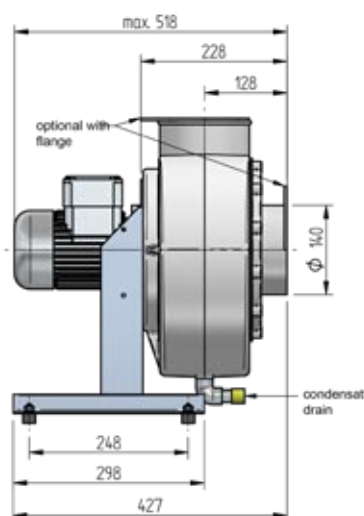


Fans optionally available
for Ex-Zone!
P. 84

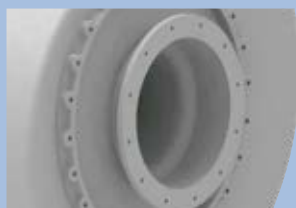
HF - Centrifugal fan Type series HF R ...-17 D



Direct drive



Accessories:


Flange connection
P. 71

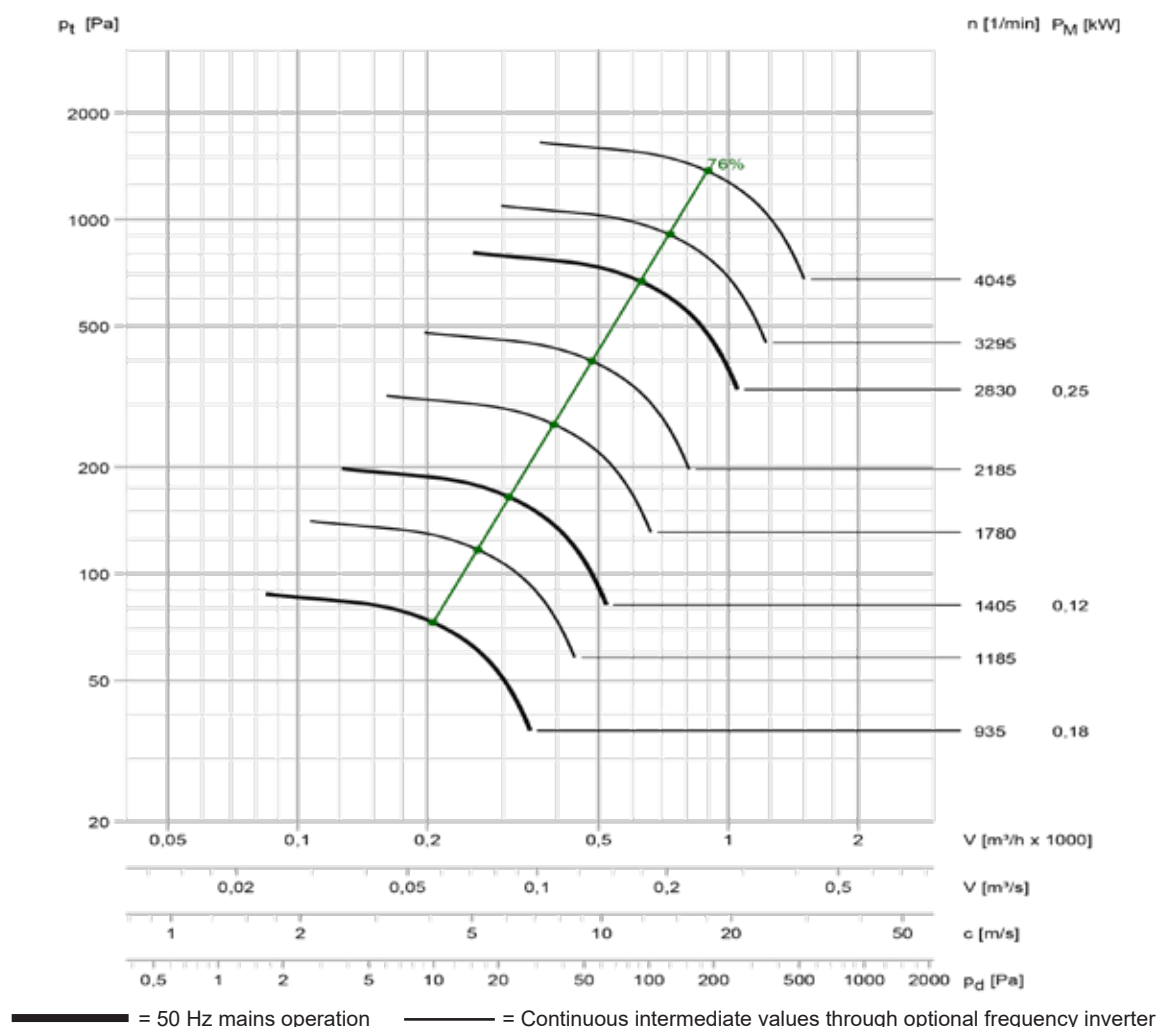
Standard
shaft seal
P. 72

Shaft seal
Viton/Hastelloy
P. 72

Protection grid
P. 72

HF R 140-17 D DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
4045	94	94	93	102	89	85	81	75	83
3295	89	89	97	85	82	78	73	68	75
2830	86	85	94	81	78	74	69	63	71
2185	80	79	87	75	71	67	61	55	65
1780	74	83	71	68	64	59	54	47	56
1405	69	77	65	62	58	53	47	40	50
1185	65	73	61	57	53	48	41	34	45
935	59	67	55	51	46	41	34	27	39



Repair switch
P. 80



Motor cover
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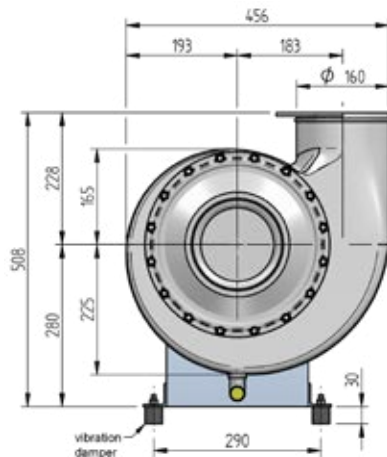


Sound enclosure
P. 75

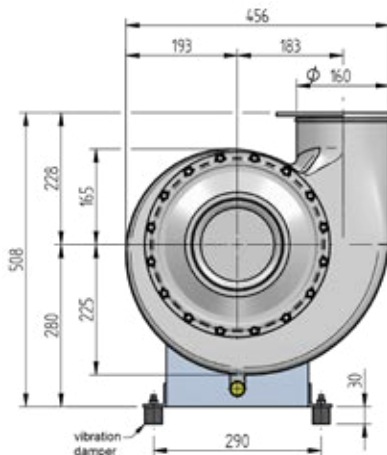
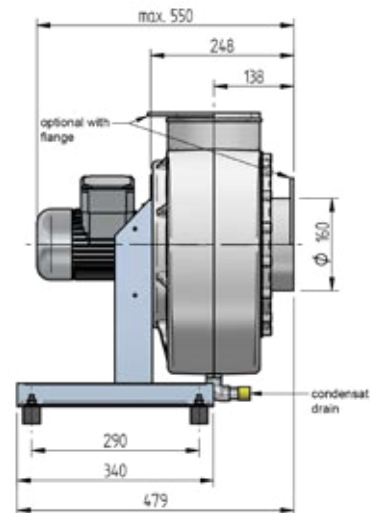


Fans optionally available
for Ex-Zone!
P. 84

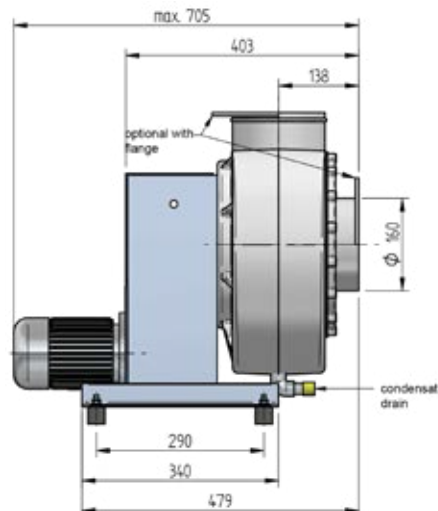
HF - Centrifugal fan Type series HF R ...-15 D / R



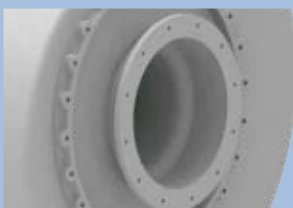
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



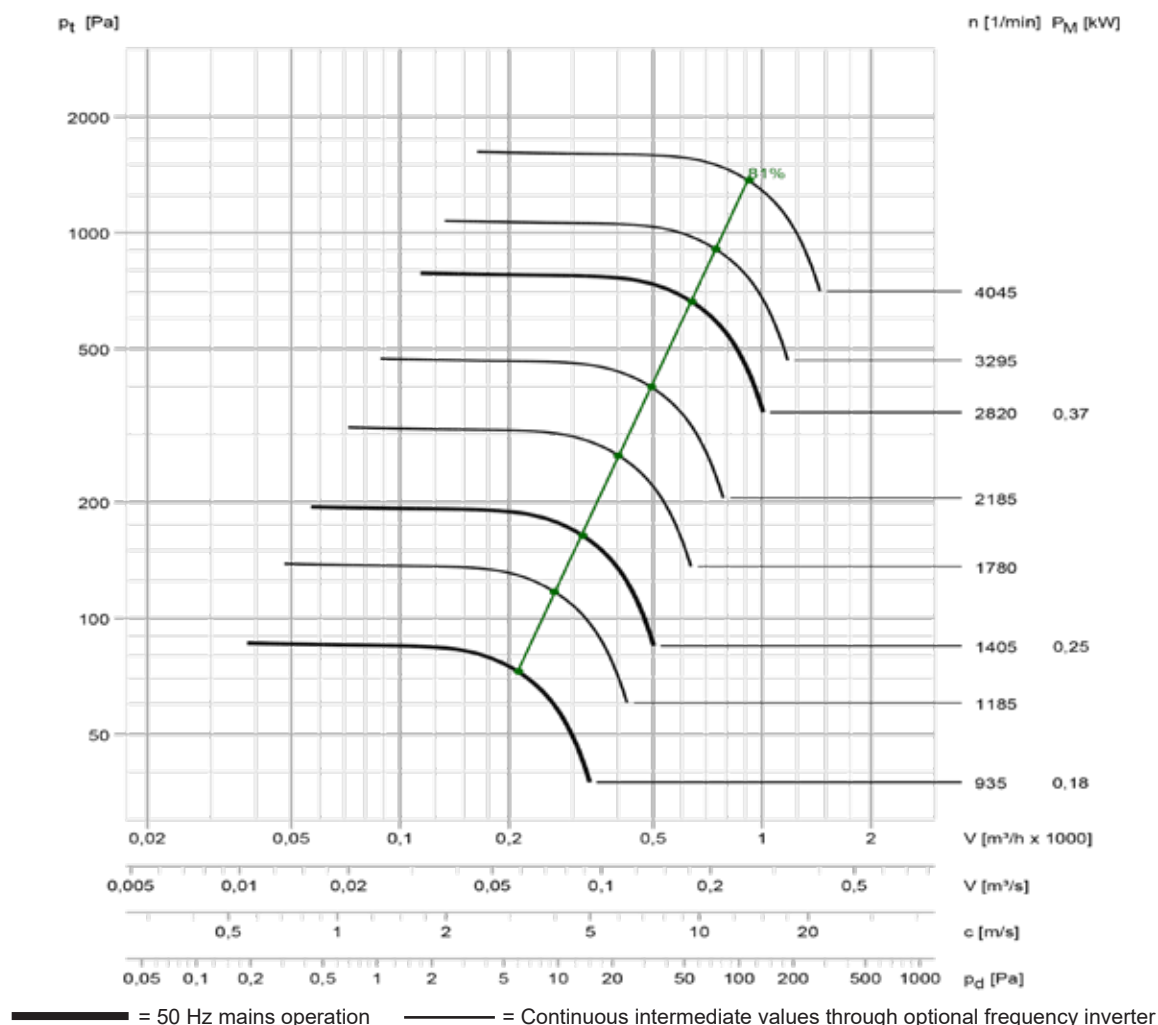
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 160-15 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
4045	91	91	89	87	82	76	69	60	72
3295	87	86	85	81	76	70	62	53	66
2820	83	83	81	77	71	65	57	47	62
2185	78	77	75	70	64	57	48	38	55
1780	74	73	69	64	58	50	41	31	50
1405	69	67	63	57	51	43	33	22	43
1185	65	63	58	53	46	37	27	16	39
935	60	58	52	46	39	30	19	7	33



Repair switch
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Motor cover
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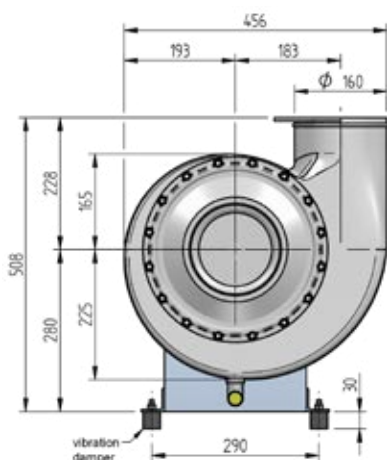


Sound enclosure
P. 75

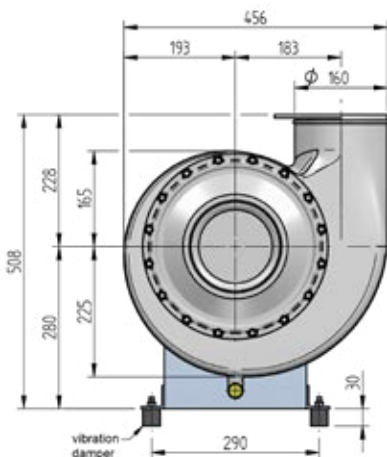
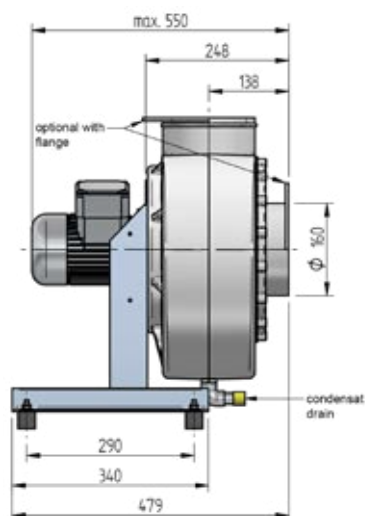


Fans optionally available
for Ex-Zone!
P. 84

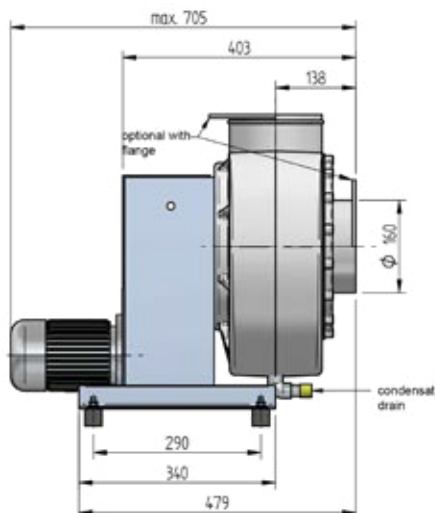
HF - Centrifugal fan
Type series HF R ...-17 D / R
optional for ATEX zone 1
in GR ...



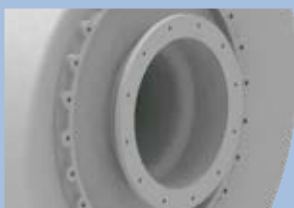
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



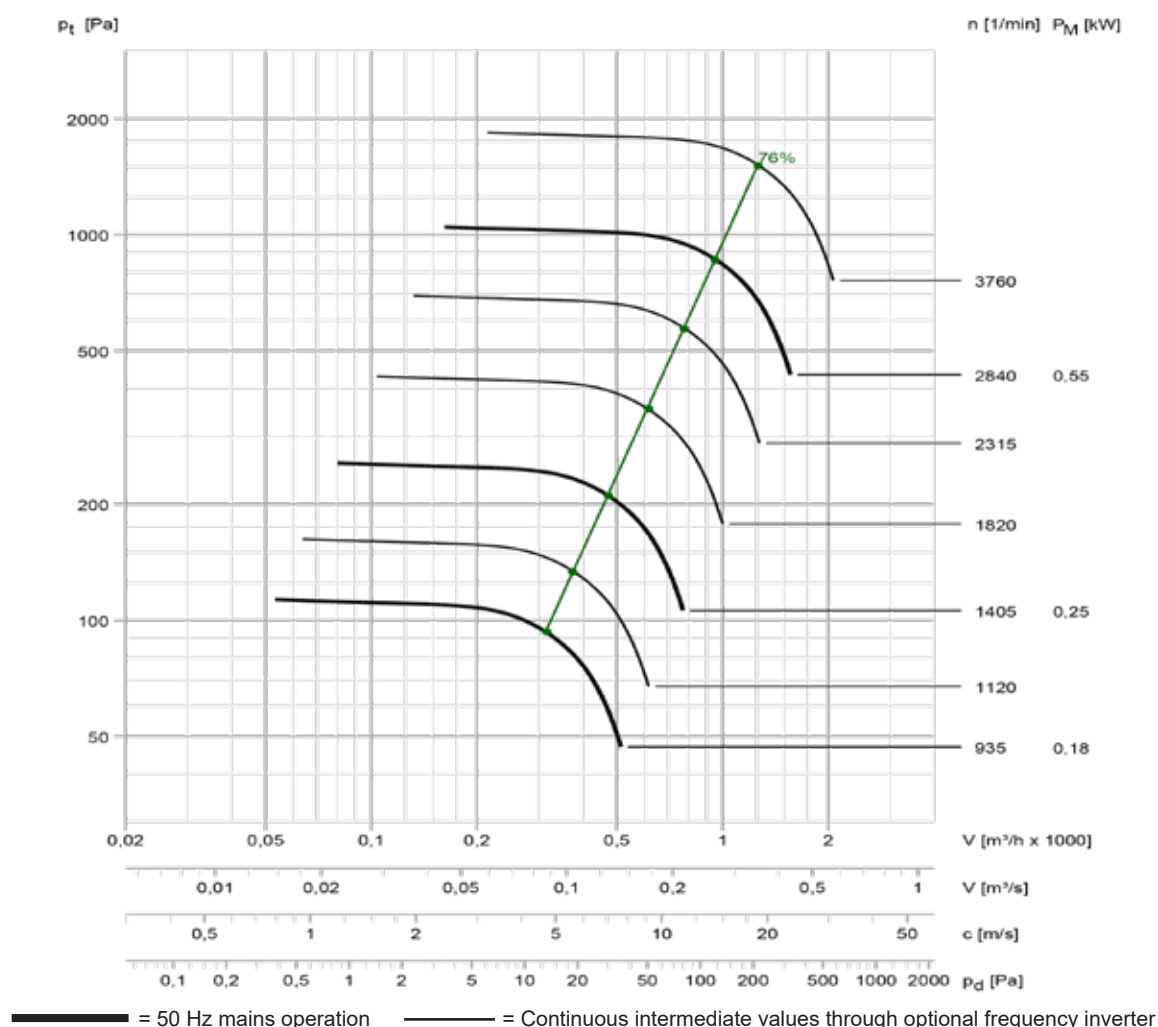
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 160-17 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
3760	100	100	99	98	95	91	86	81	83
2840	94	94	93	90	87	83	78	72	76
2315	90	89	88	85	81	77	72	65	70
1820	84	83	82	78	75	70	64	58	64
1405	78	78	75	71	67	62	56	49	57
1120	73	72	69	65	61	56	49	42	51
935	69	68	64	61	56	50	44	36	46



Repair switch
P. 80



Motor cover
P. 74

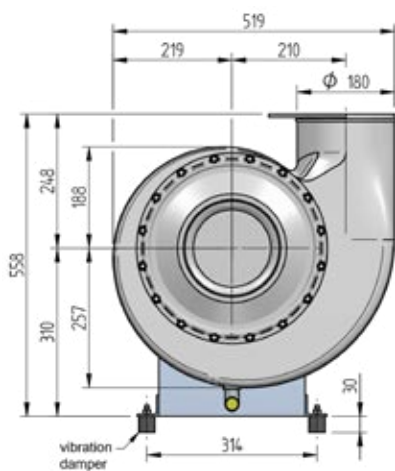


Sound enclosure
P. 75

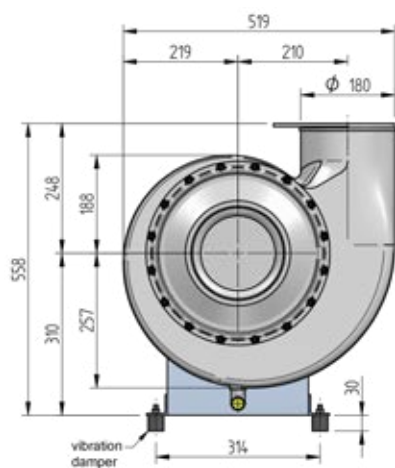
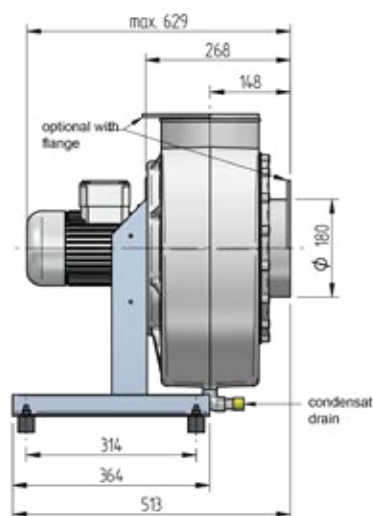


Fans optionally available
for Ex-Zone!
P. 84

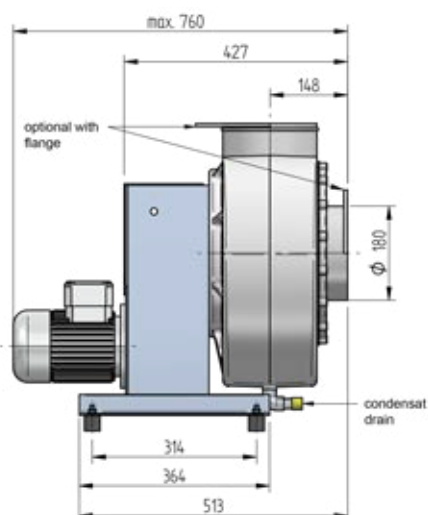
HF - Centrifugal fan Type series HF R ...-15 D / R



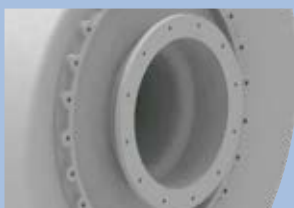
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



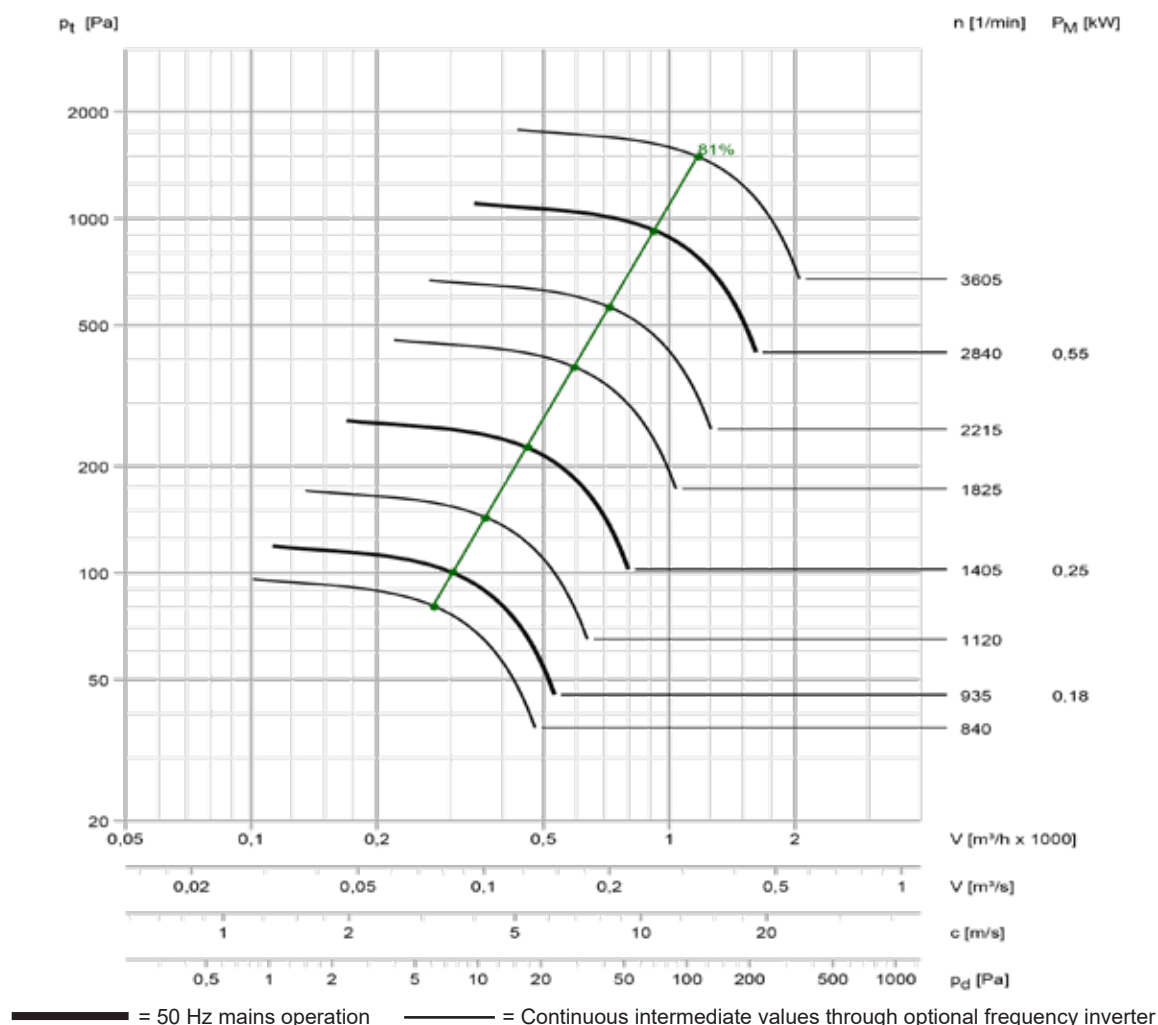
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 180-15 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
3605	90	90	88	95	80	74	67	58	76
2840	84	83	91	77	72	65	57	48	67
2215	79	77	85	70	65	58	49	39	61
1825	75	73	80	65	59	52	43	32	57
1405	67	75	61	56	50	42	32	21	46
1120	63	70	56	50	43	34	24	13	40
935	59	66	51	45	38	29	18	6	36
840	64	51	46	39	32	23	12	0	28



Repair switch
P. 80



Motor cover
P. 74

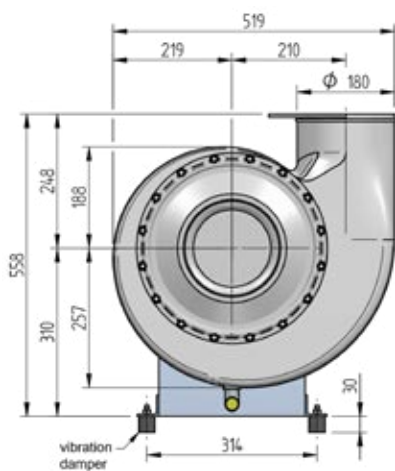


Sound enclosure
P. 75

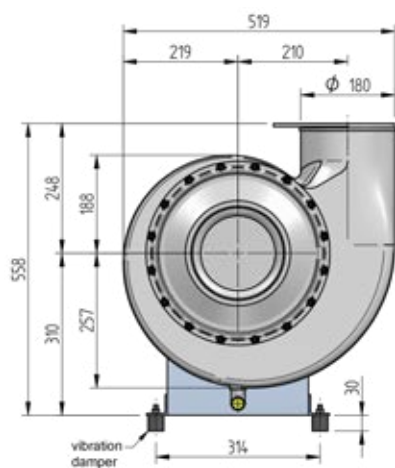
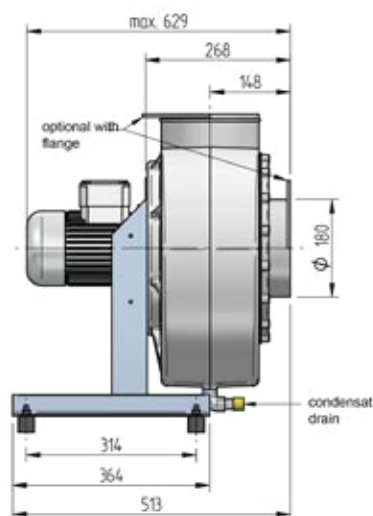


Fans optionally available
for Ex-Zone!
P. 84

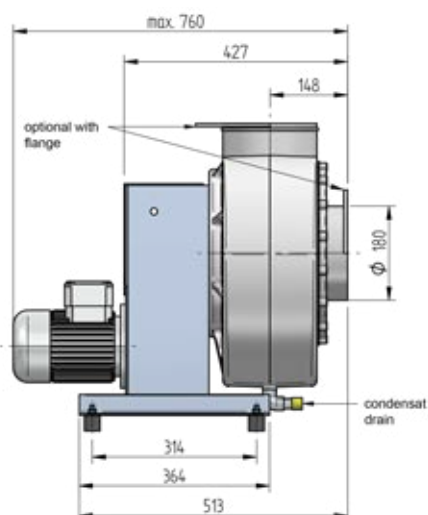
HF - Centrifugal fan Type series HF R ...-17 D / R



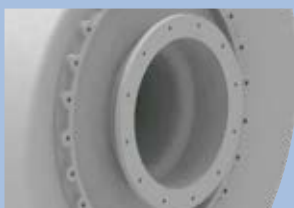
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



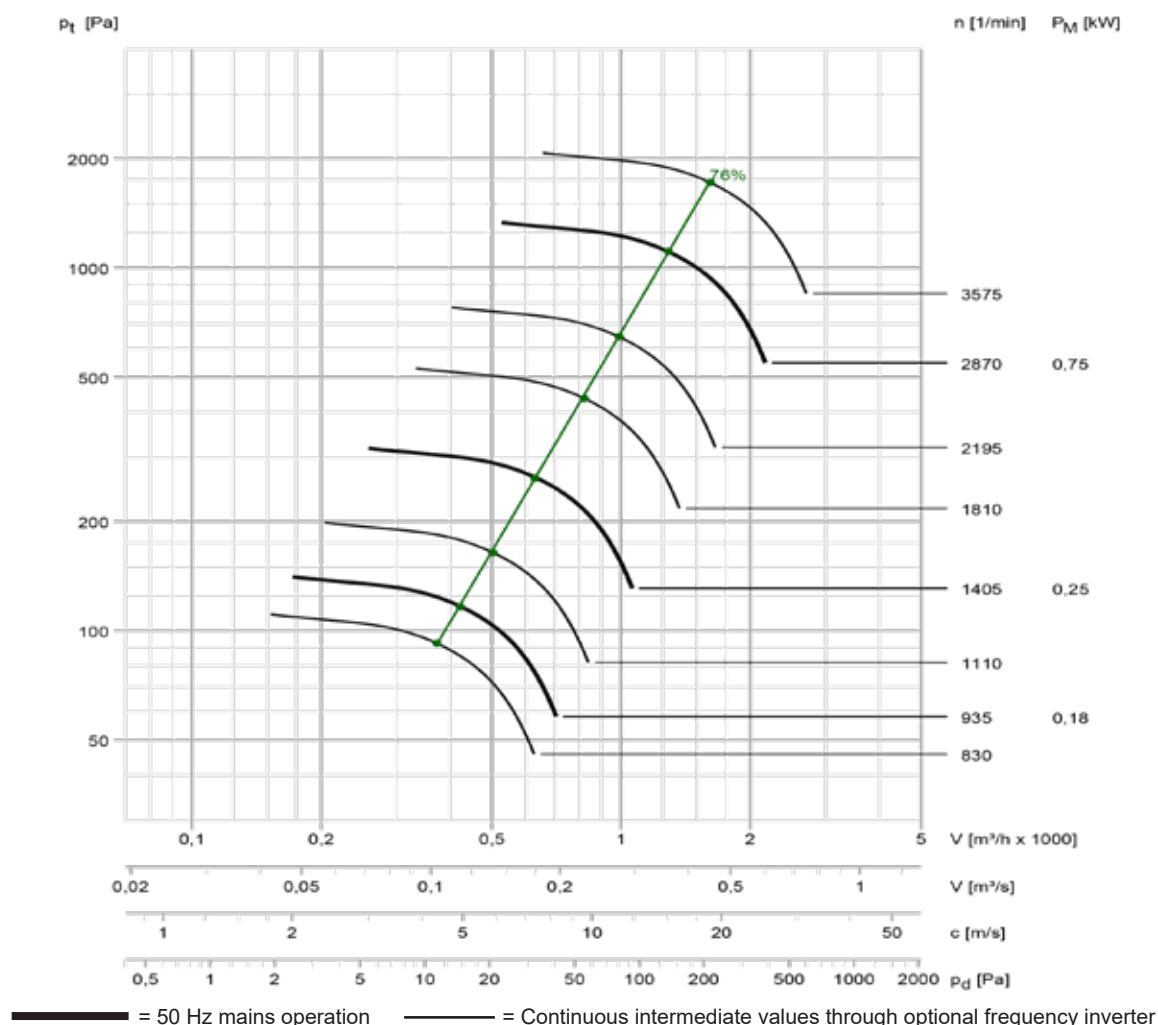
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 180-17 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
3575	100	99	98	106	93	90	85	79	87
2870	94	93	102	89	86	82	77	71	79
2195	88	87	95	83	79	75	69	63	72
1810	84	82	90	78	74	69	63	57	67
1405	76	85	73	69	65	60	54	48	57
1110	71	79	67	63	59	53	47	40	51
935	67	75	62	59	54	48	42	35	47
830	73	61	58	54	49	43	37	29	40



Repair switch
P. 80



Motor cover
P. 74

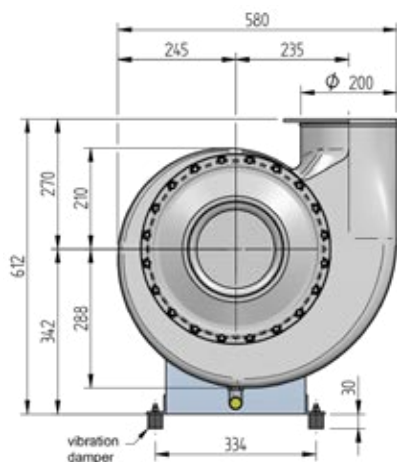


Sound enclosure
P. 75

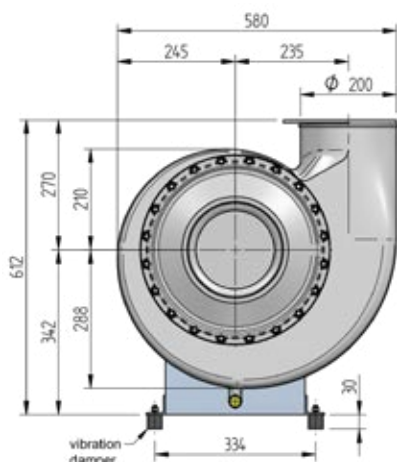
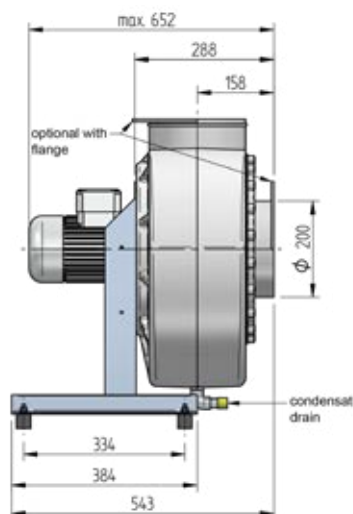


Fans optionally available
for Ex-Zone!
P. 84

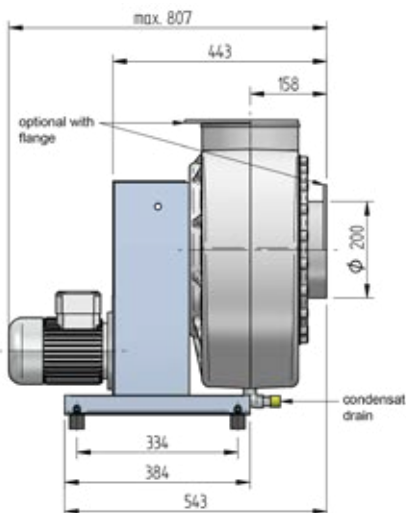
HF - Centrifugal fan Type series HF R ...-15 D / R



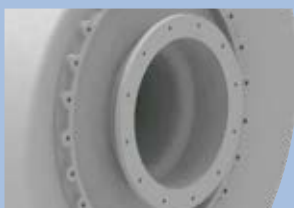
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



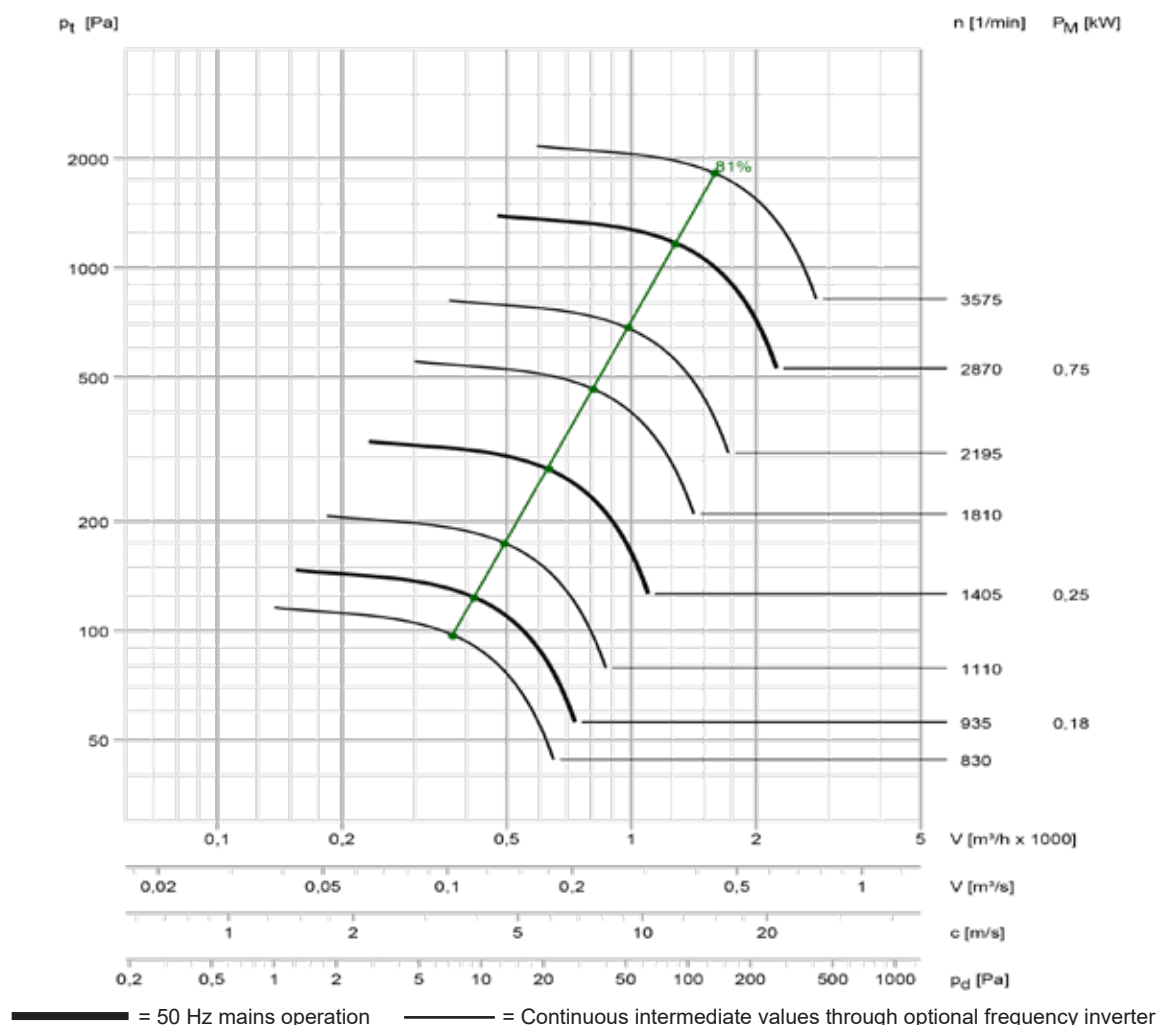
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 200-15 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
3575	93	93	91	98	83	77	70	61	79
2870	87	86	94	81	75	69	61	51	71
2195	82	81	88	74	68	61	52	42	64
1810	78	76	83	69	62	55	46	36	59
1405	71	78	65	60	53	45	35	24	49
1110	66	73	59	53	46	37	27	16	43
935	62	69	54	48	41	32	22	10	39
830	67	54	49	42	35	26	15	3	30



Repair switch
P. 80



Motor cover
P. 74

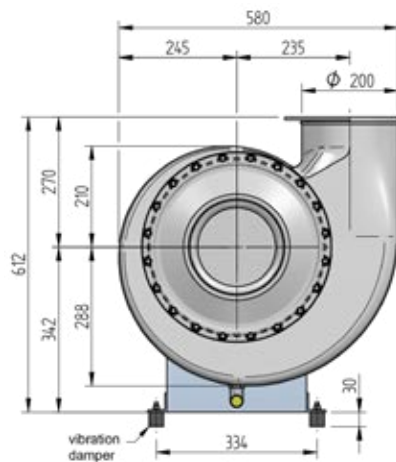


Sound enclosure
P. 75

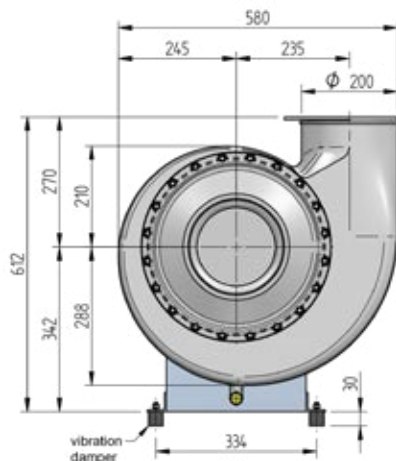
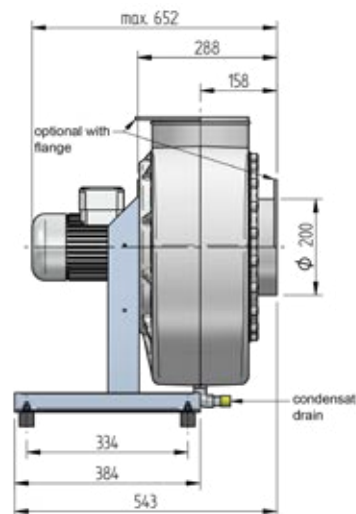


Fans optionally available
for Ex-Zone!
P. 84

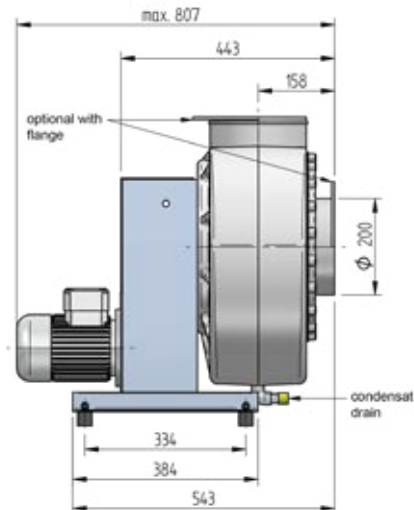
HF - Centrifugal fan
Type series HF R ...-17 D / R
optional for ATEX zone 1
in GR ...



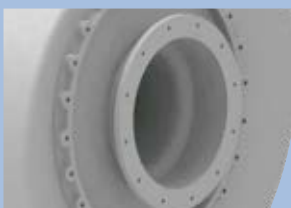
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



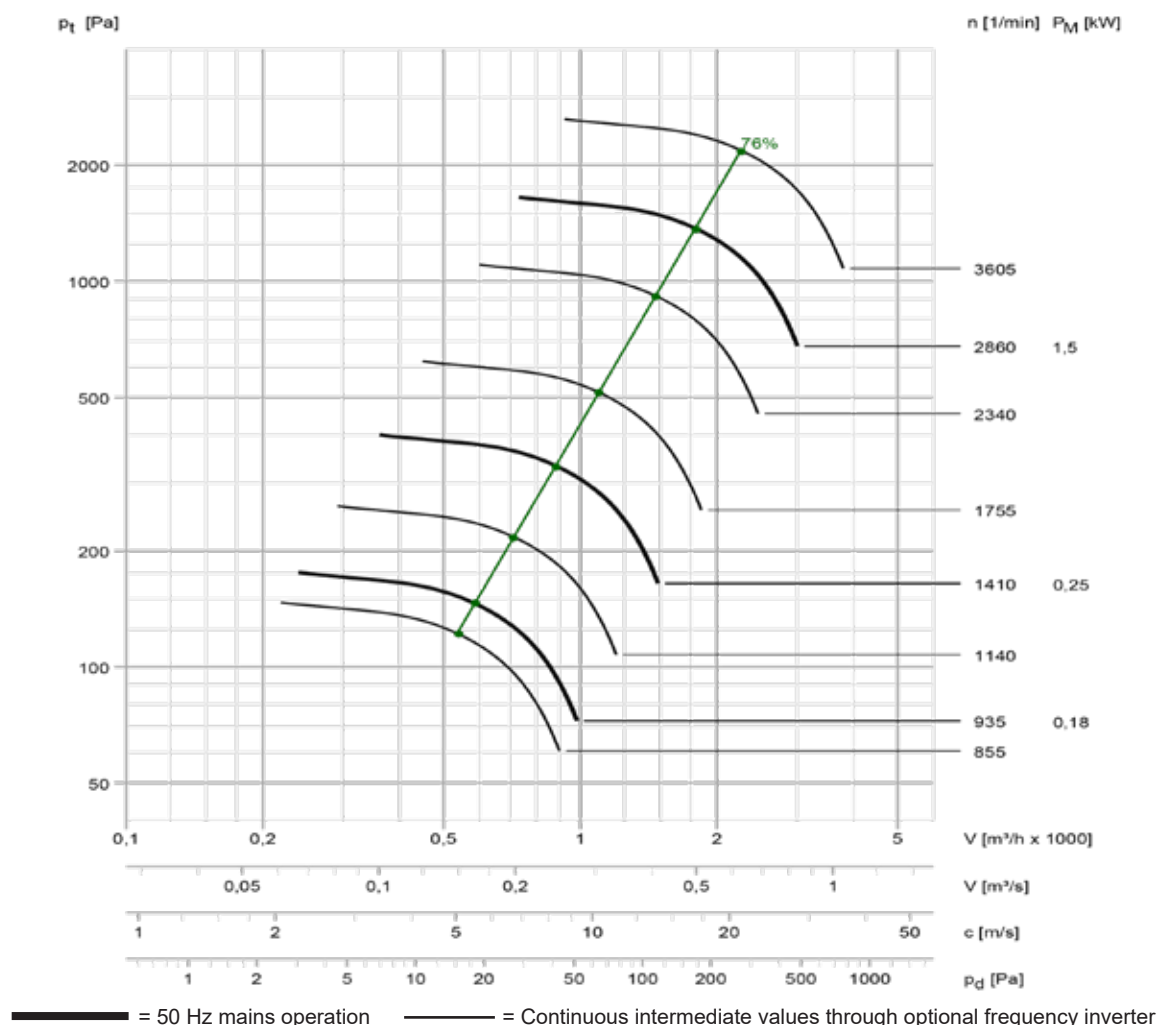
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 200-17 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
3605	103	103	102	110	97	93	89	83	91
2860	97	97	105	93	90	86	81	75	82
2340	93	92	100	88	84	80	75	69	77
1755	85	94	82	79	75	70	65	58	66
1410	80	89	76	73	69	64	58	51	60
1140	75	84	71	68	63	58	52	44	55
935	71	79	66	62	58	52	46	38	50
855	77	65	62	58	53	48	41	34	44



Repair switch
P. 80



Motor cover
P. 74

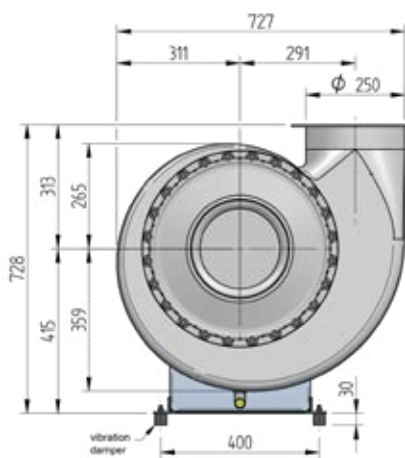


Sound enclosure
P. 75

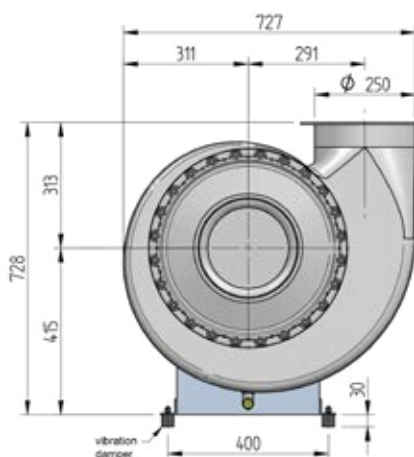
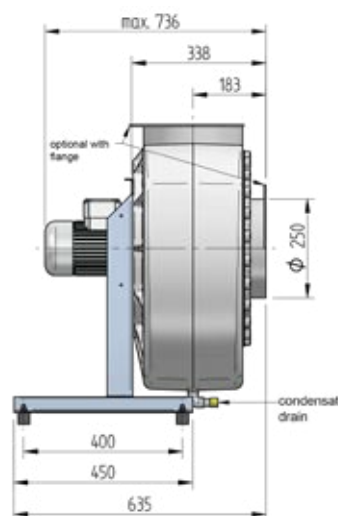


Fans optionally available
for Ex-Zone!
P. 84

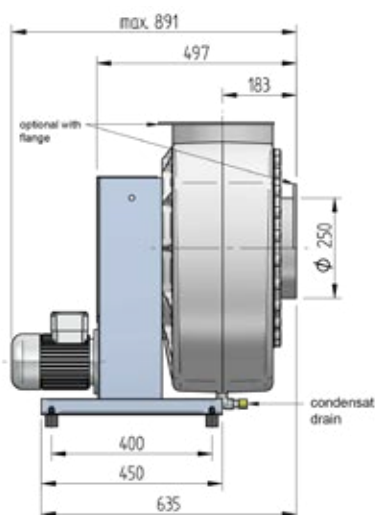
HF - Centrifugal fan Type series HF R ...-15 D / R



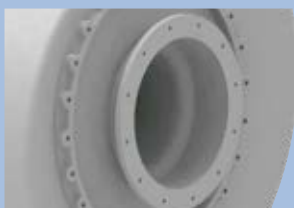
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



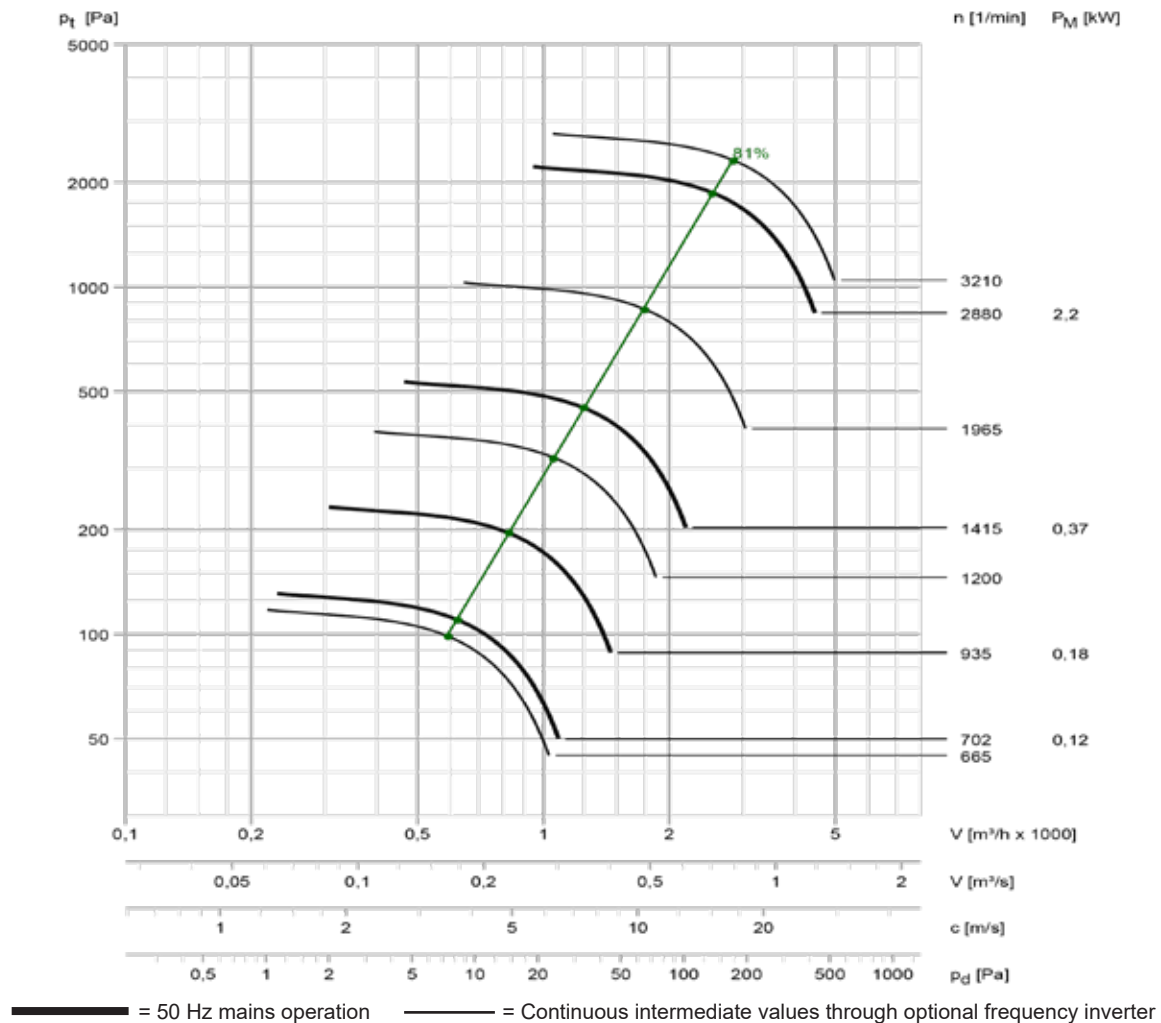
Standard
shaft seal
P. 72



Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
3210	97	96	104	91	86	79	72	62	80
2880	95	94	102	88	83	76	68	59	77
1965	87	85	92	78	72	65	56	46	68
1415	75	86	72	67	60	52	43	32	56
1200	75	82	68	62	56	47	37	26	52
935	69	76	62	56	48	39	29	17	46
702	70	57	51	45	37	27	16	4	33
665	69	55	50	43	35	25	14	2	31



Repair switch
P. 80



Motor cover
P. 74

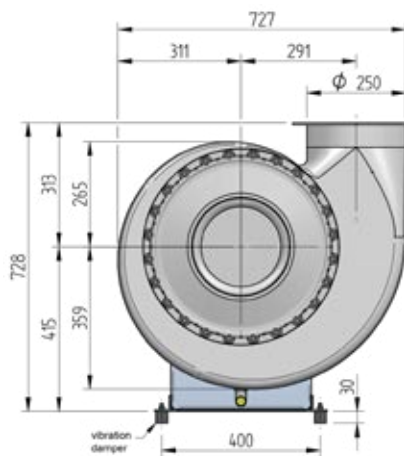


Sound enclosure
P. 75

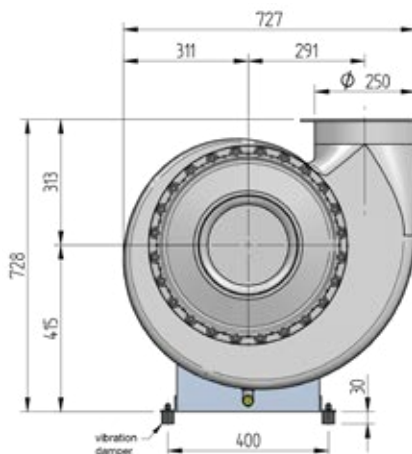
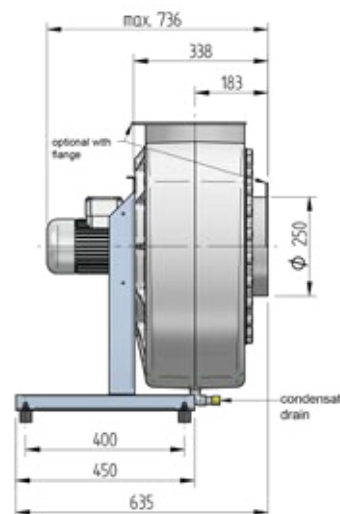


Fans optionally available
for Ex-Zone!
P. 84

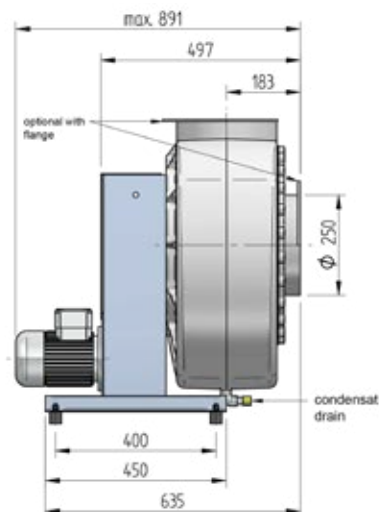
HF - Centrifugal fan
Type series HF R ...-17 D / R
optional for ATEX zone 1
in GR ...



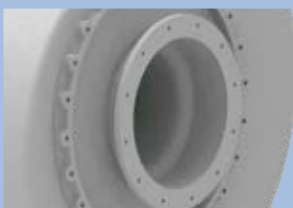
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



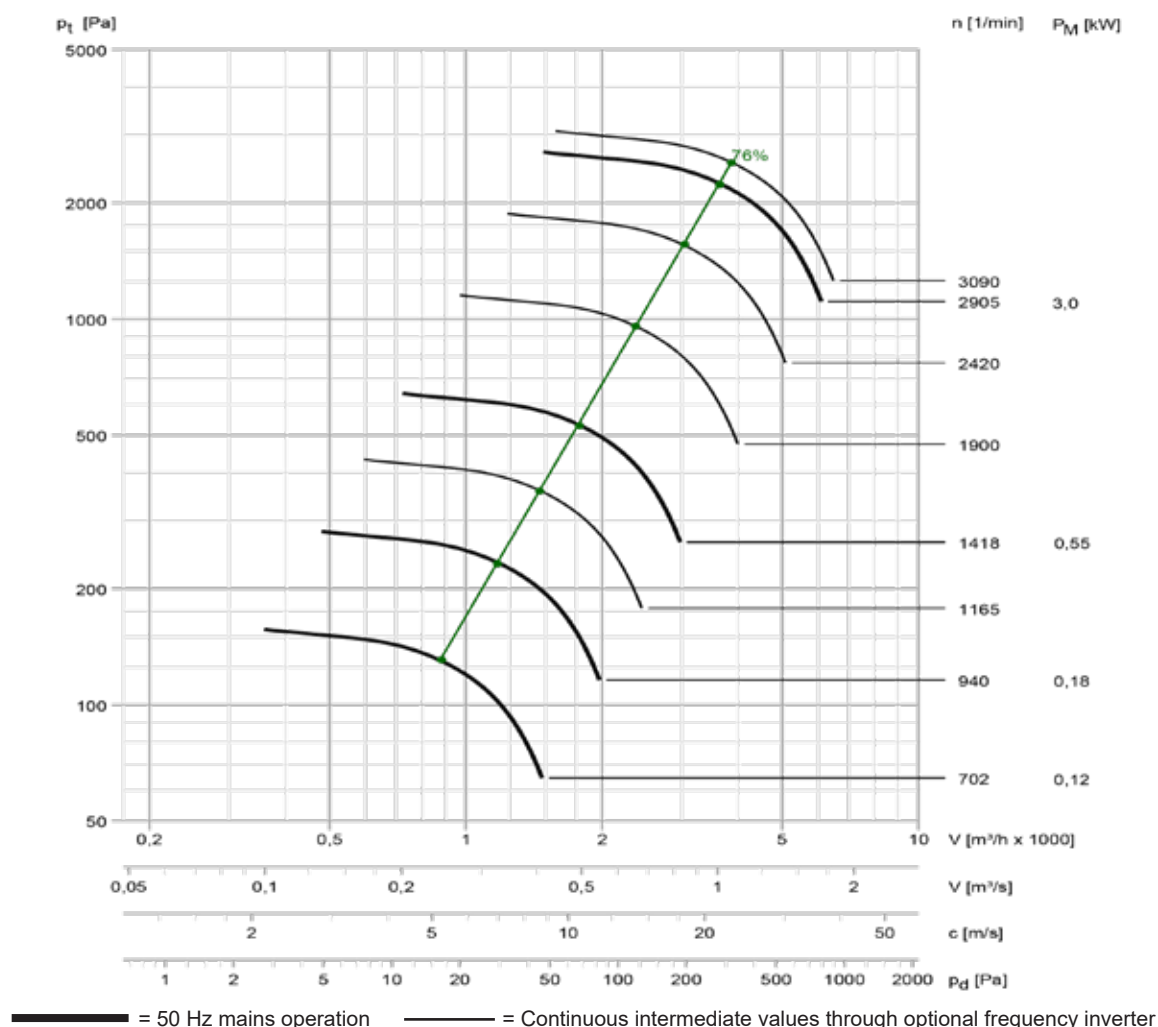
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 250-17 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; $L_{w3} = L_{w4}$ [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
3090	106	106	115	102	99	95	90	85	91
2905	105	105	113	101	98	94	89	83	90
2420	101	100	109	96	93	88	83	77	85
1900	96	95	103	90	86	82	76	70	79
1418	88	96	84	81	77	72	66	59	68
1165	83	92	79	76	71	66	60	53	63
940	78	87	74	70	65	60	53	46	57
702	80	68	64	60	55	49	43	35	46



Repair switch
P. 80



Motor cover
P. 74

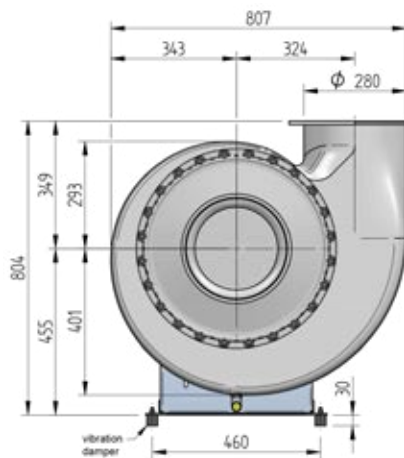


Sound enclosure
P. 75

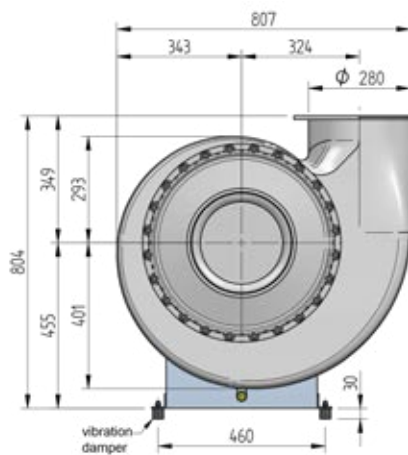
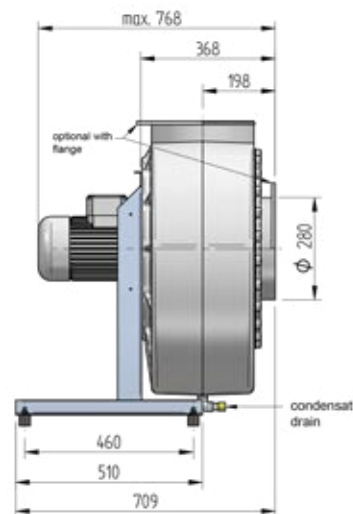


Fans optionally available
for Ex-Zone!
P. 84

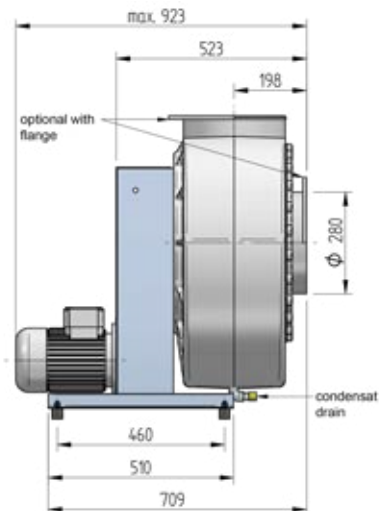
HF - Centrifugal fan Type series HF R ...-15 D / R



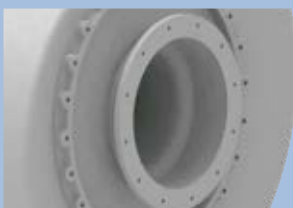
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



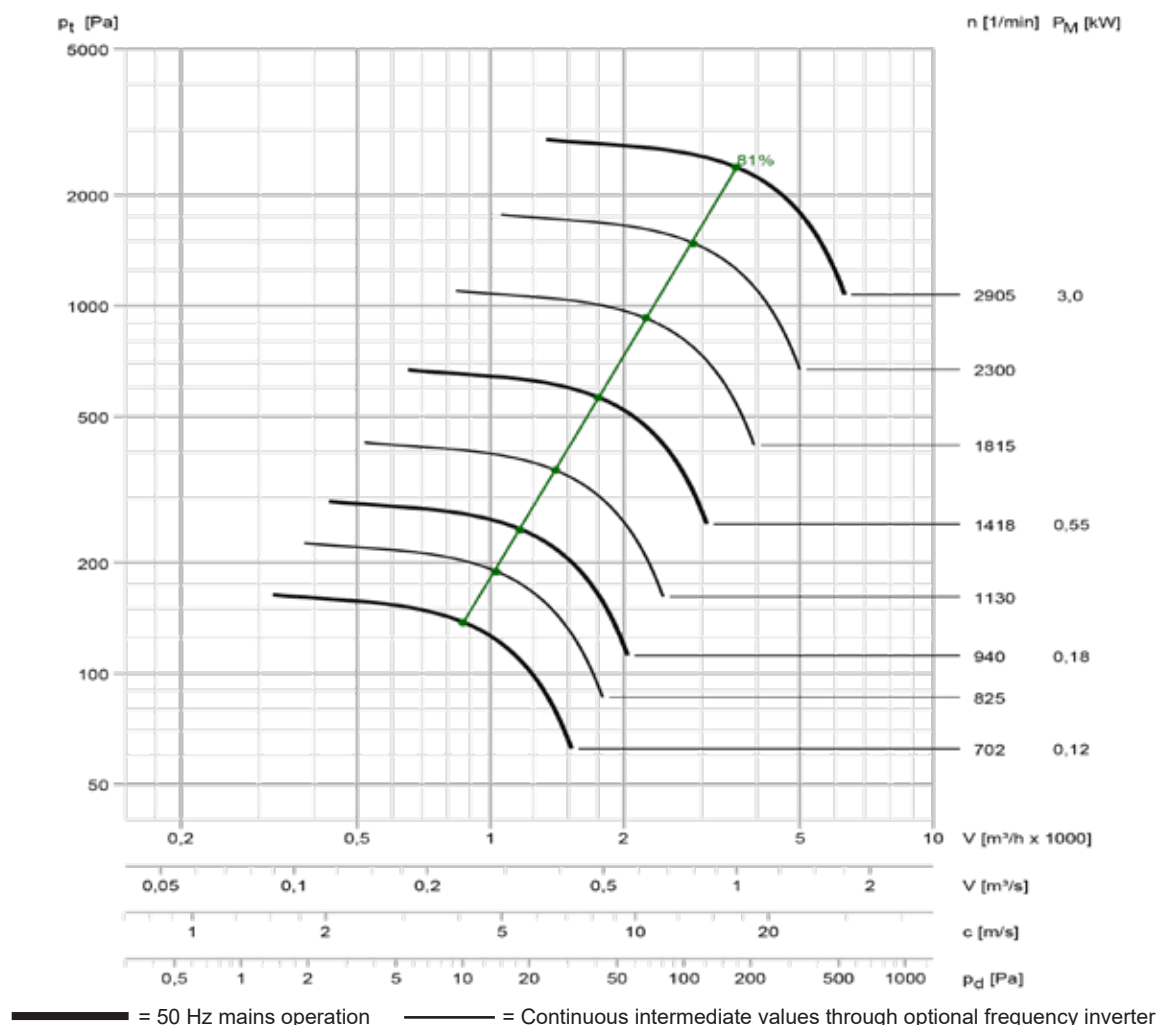
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 280-15 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; $L_{w3} = L_{w4}$ [dB]								L_{p2A} (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
2905	98	98	105	92	87	80	72	63	81
2300	94	92	100	86	80	73	65	55	75
1815	89	87	94	79	73	66	57	46	70
1418	82	89	76	7	64	56	46	36	59
1130	77	84	70	64	57	49	39	27	54
940	73	80	65	59	52	43	33	21	49
825	78	64	59	53	45	36	26	14	40
702	74	60	55	48	40	31	20	7	36



Repair switch
P. 80



Motor cover
P. 74

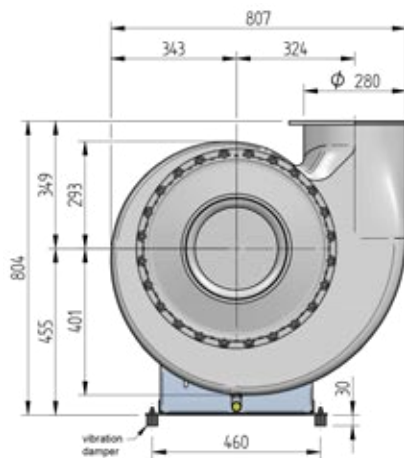


Sound enclosure
P. 75

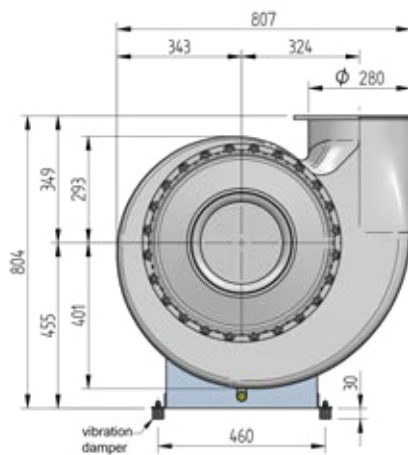
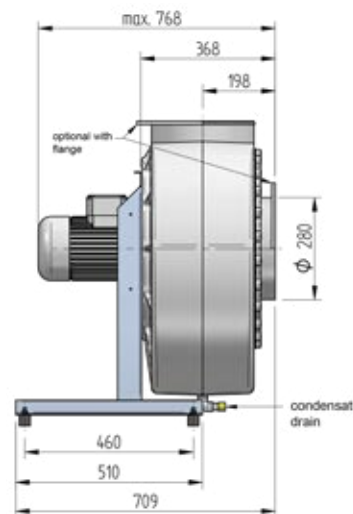


Fans optionally available
for Ex-Zone!
P. 84

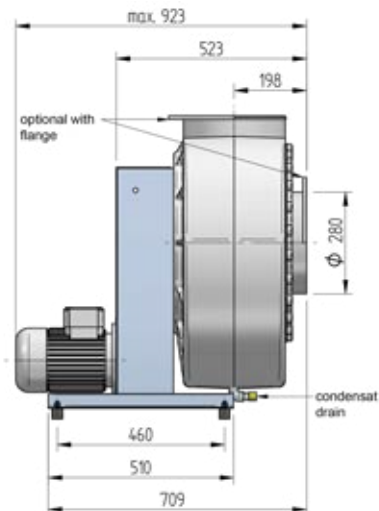
HF - Centrifugal fan Type series HF R ...-17 D / R



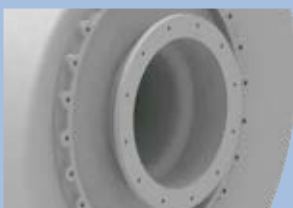
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



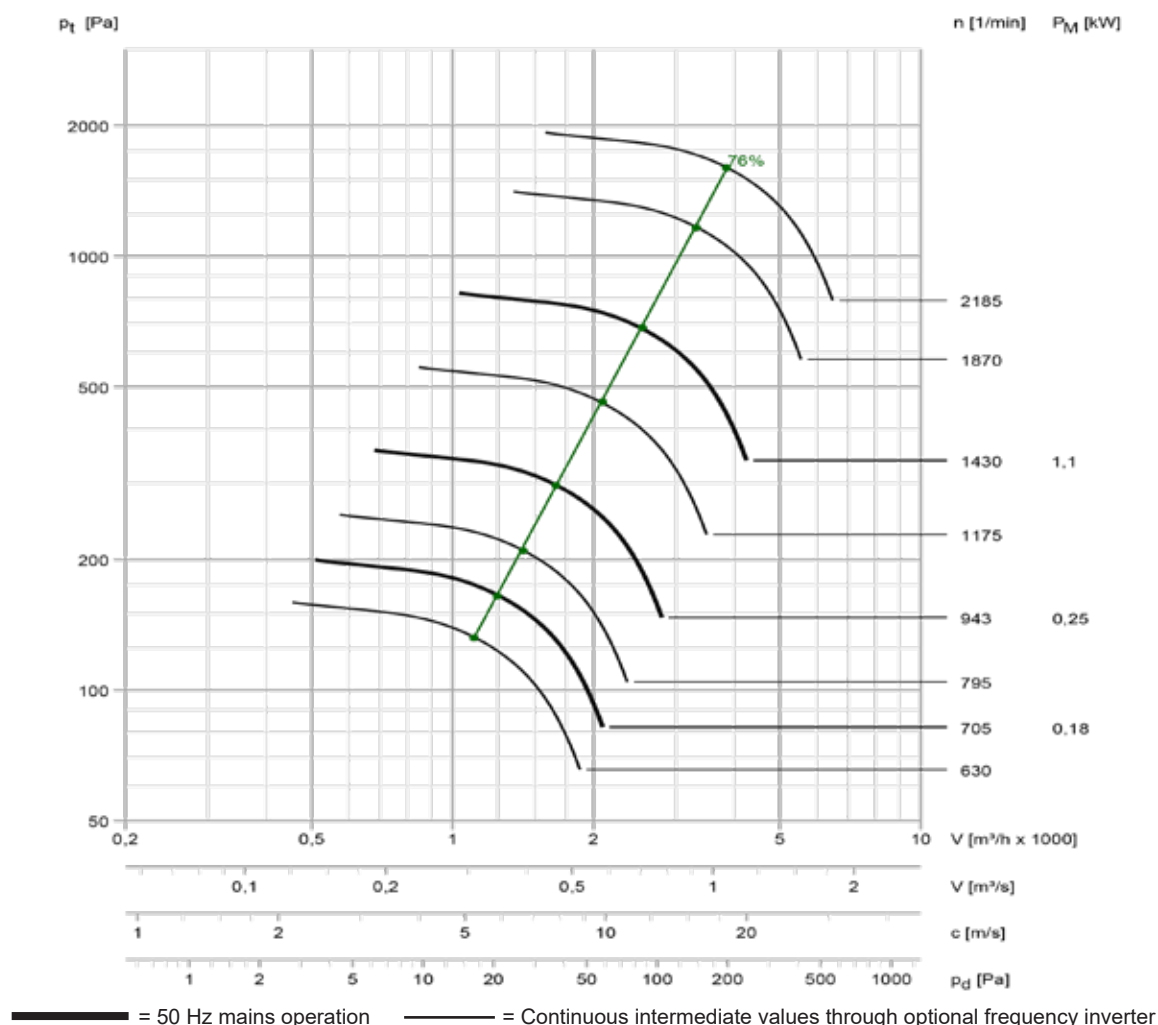
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 280-17 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
2185	103	102	110	97	94	89	84	78	86
1870	99	98	106	93	90	85	79	73	82
1430	92	100	88	85	81	76	70	63	71
1175	87	96	83	80	75	70	64	57	66
943	82	90	78	74	69	64	57	50	61
795	87	75	72	68	63	57	50	43	52
705	84	72	68	64	59	53	46	39	49
630	81	69	65	61	56	50	43	35	46



Repair switch
P. 80



Motor cover
P. 74

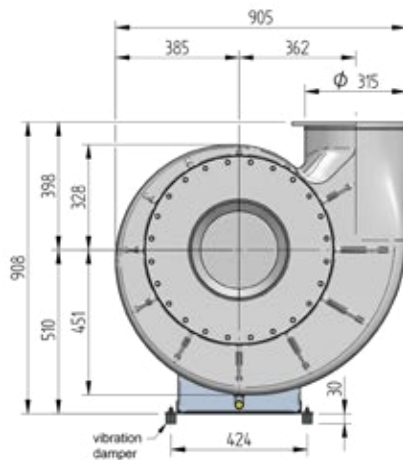


Sound enclosure
P. 75

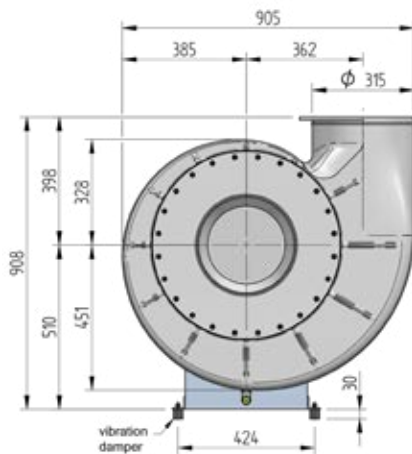
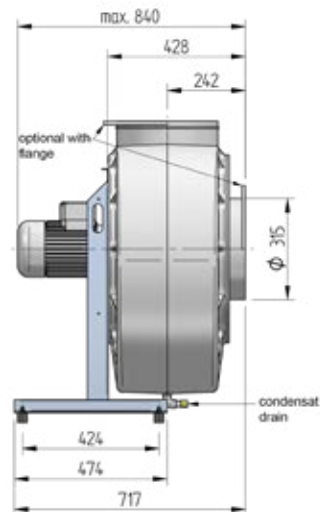


Fans optionally available
for Ex-Zone!
P. 84

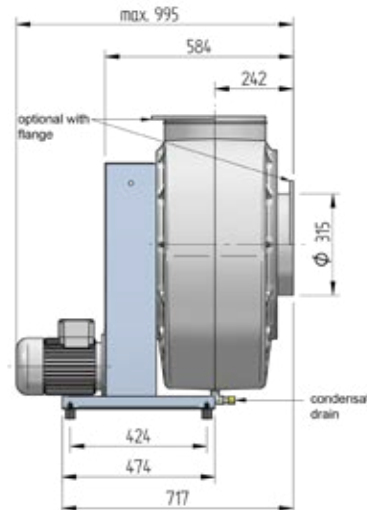
HF - Centrifugal fan Type series HF R ...-15 D / R



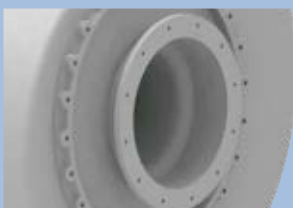
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



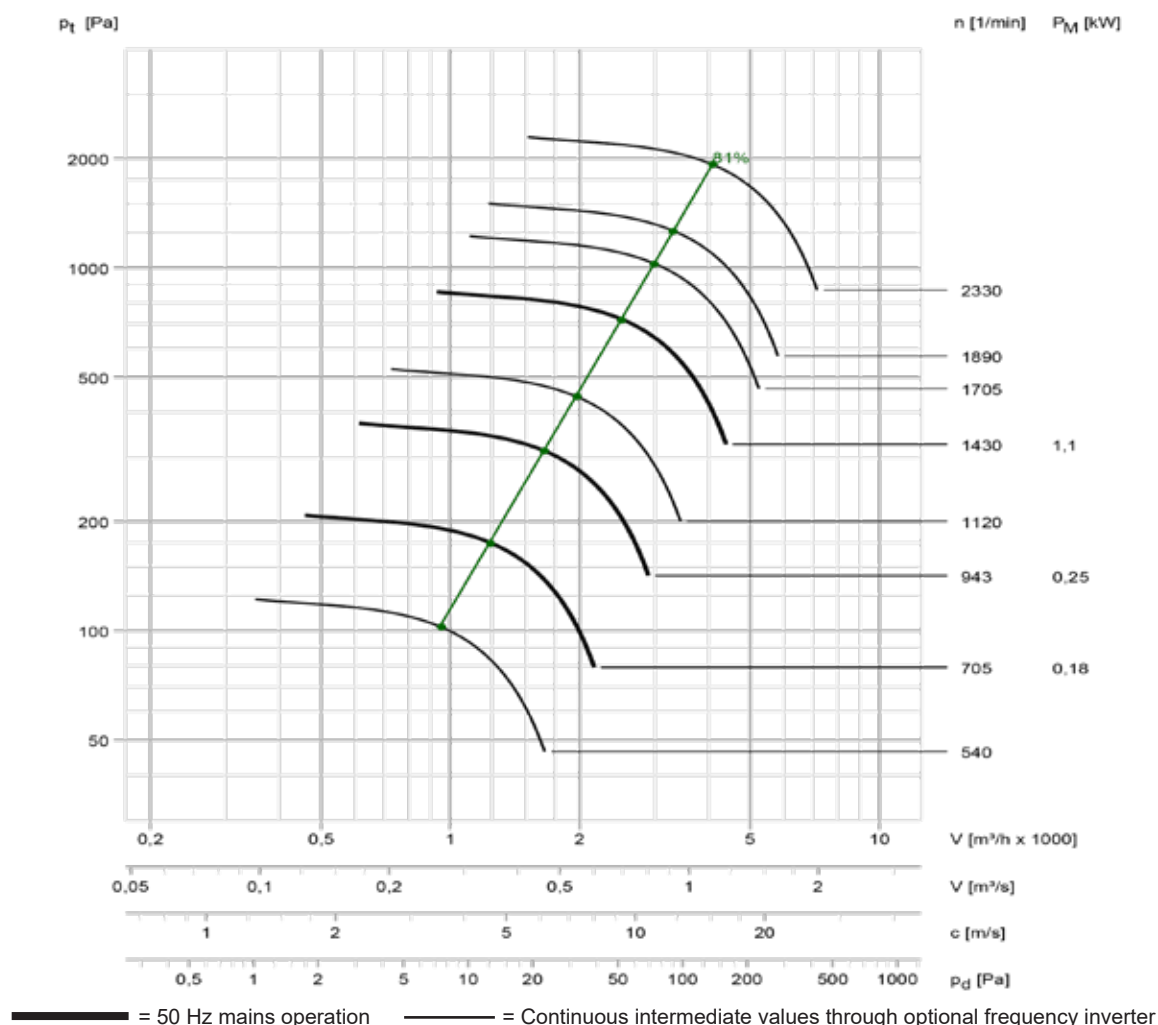
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 315-15 D / R DS1

PPs Impeller | optional with EC-motor



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
2330	98	96	104	90	84	77	69	59	79
1890	93	92	99	84	78	71	62	52	74
1705	89	97	84	79	73	65	56	46	67
1430	86	93	80	75	68	60	50	40	63
1120	80	88	73	68	61	52	42	31	57
943	77	84	69	63	56	47	36	25	52
705	78	64	59	52	44	35	24	11	40
540	72	57	52	44	36	26	14	1	33



Repair switch
P. 80



Motor cover
P. 74

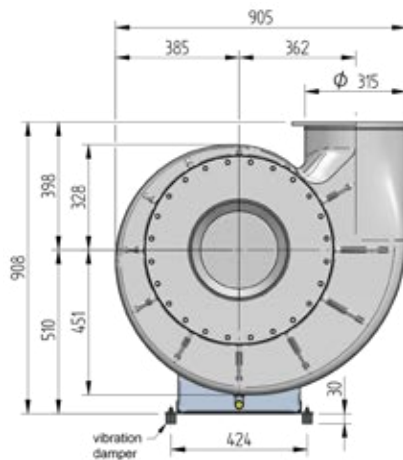


Sound enclosure
P. 75

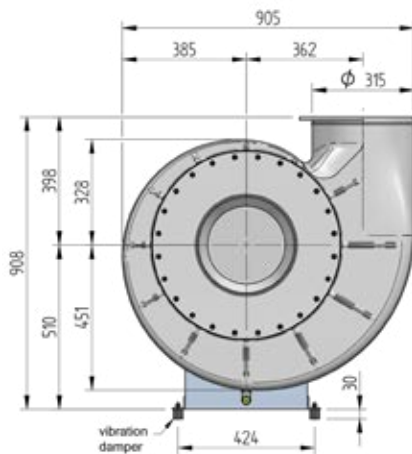
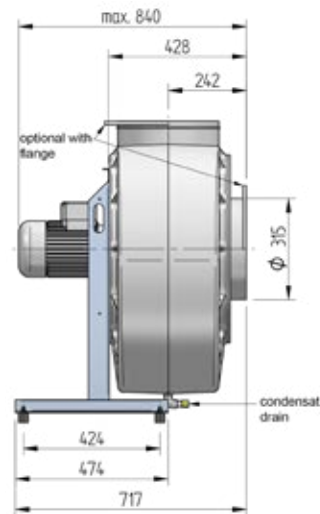


Fans optionally available
for Ex-Zone!
P. 84

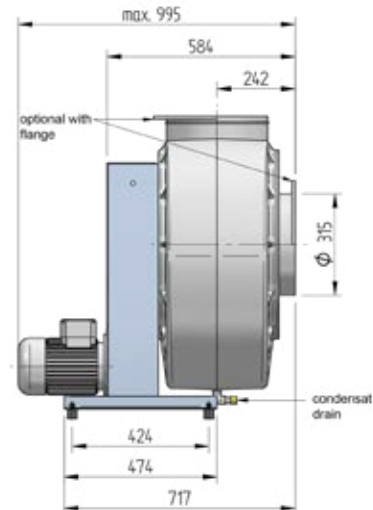
HF - Centrifugal fan
Type series HF R ...-17 D / R



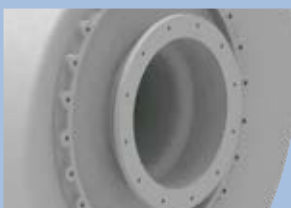
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



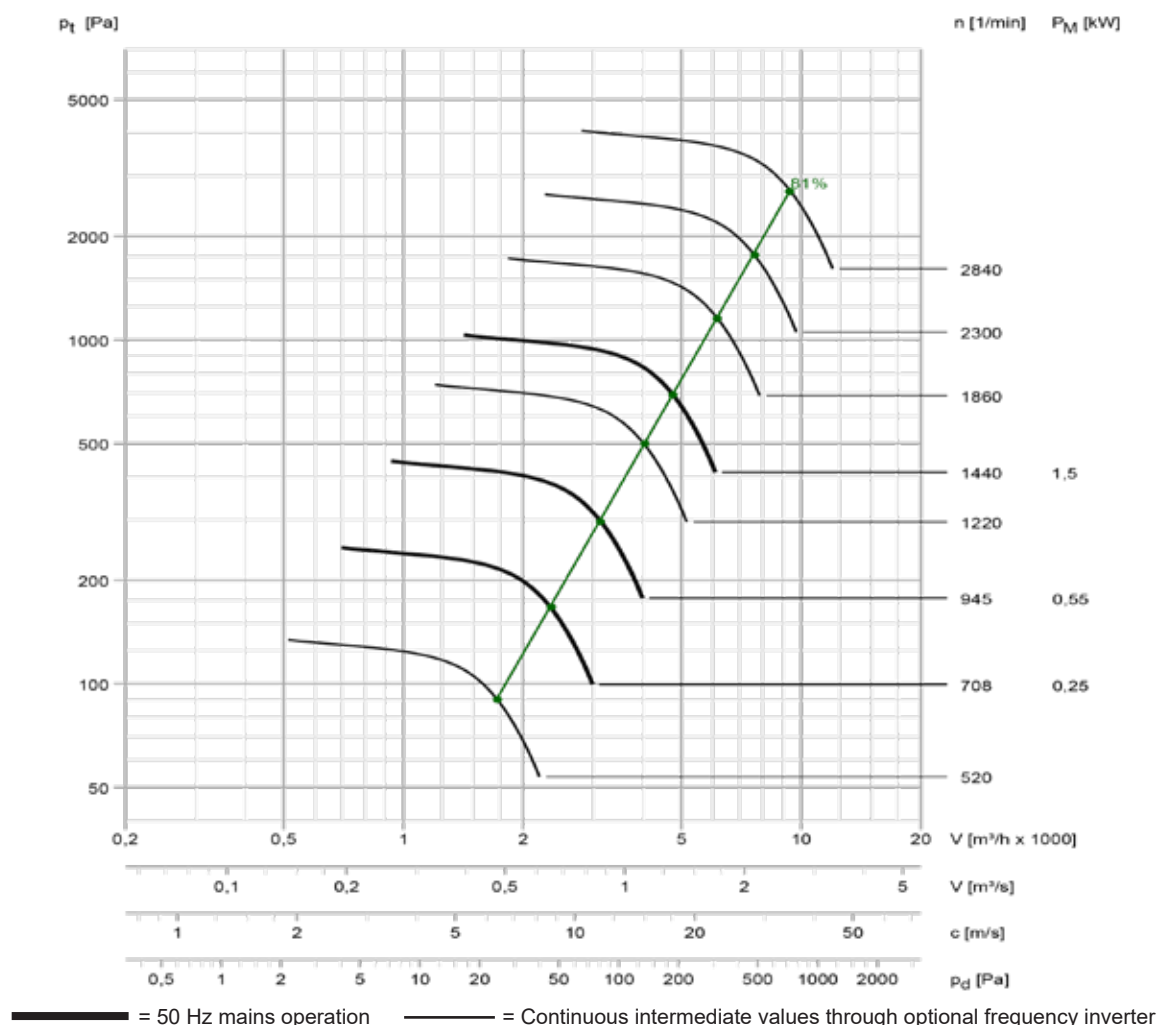
Standard
shaft seal
P. 72



Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
2840	99	99	97	105	92	88	83	77	85
2300	96	95	93	101	87	83	77	71	80
1860	90	89	97	85	81	76	71	64	73
1440	86	85	92	79	75	70	64	57	68
1220	83	81	89	76	71	66	60	53	64
945	77	85	72	68	64	58	51	44	55
708	71	79	66	62	57	51	44	36	49
520	66	73	59	55	49	43	36	28	42



Repair switch
P. 80



Motor cover
P. 74

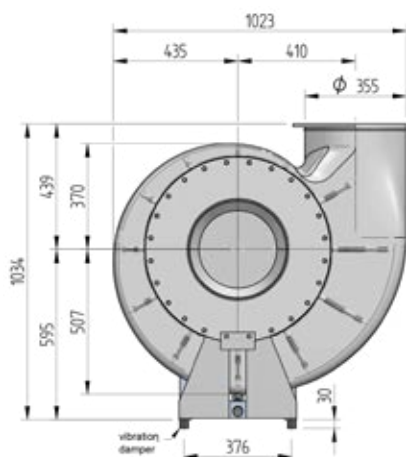


Sound enclosure
P. 75

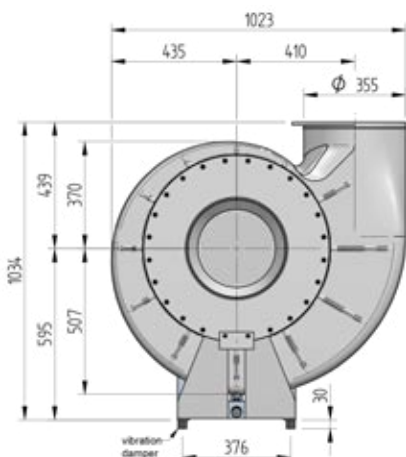
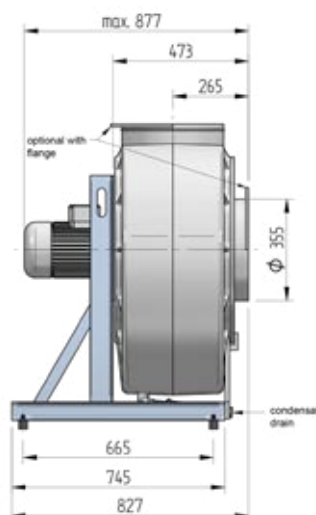


Fans optionally available
for Ex-Zone!
P. 84

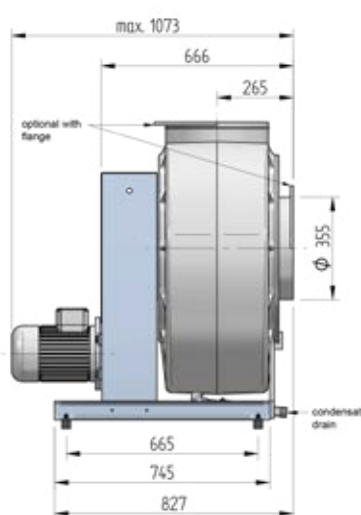
HF - Centrifugal fan
Type series HF R ...-15 D / R



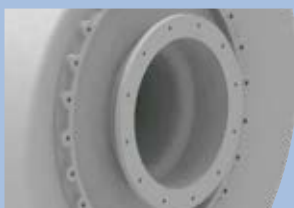
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



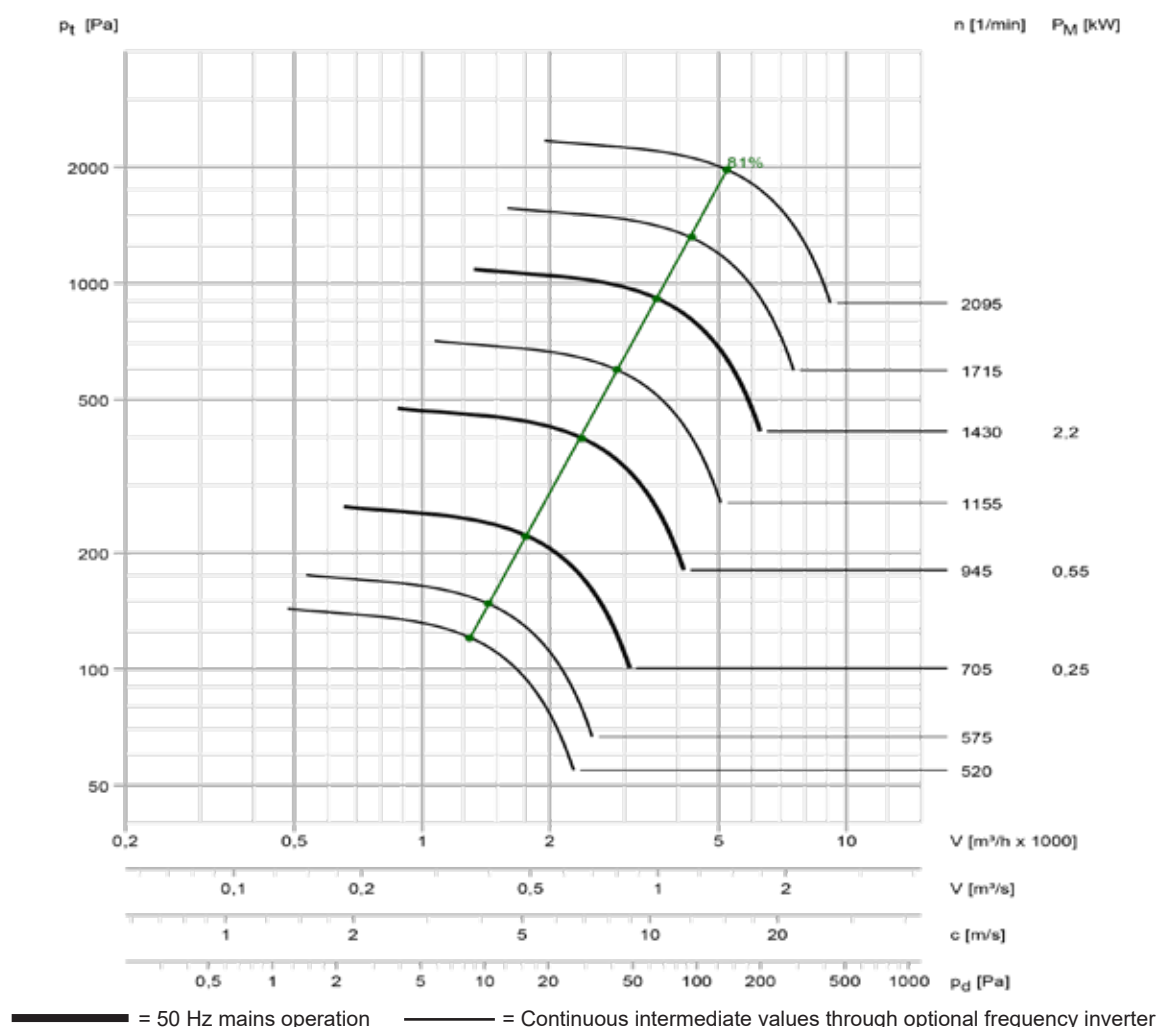
Standard
shaft seal
P. 72



Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
2095	99	98	105	91	85	78	69	59	80
1715	93	101	88	83	77	69	60	50	70
1430	89	97	83	78	72	64	54	43	66
1155	85	92	78	72	65	57	47	36	61
945	80	87	73	67	59	51	40	28	56
705	81	68	63	56	48	38	27	15	43
575	77	63	57	50	42	32	20	7	38
520	74	60	54	47	38	28	17	4	35



Repair switch
P. 80



Motor cover
P. 74

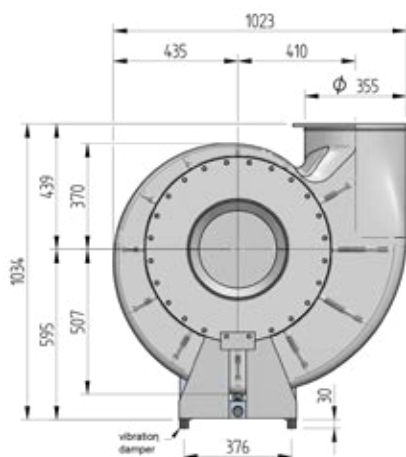


Sound enclosure
P. 75

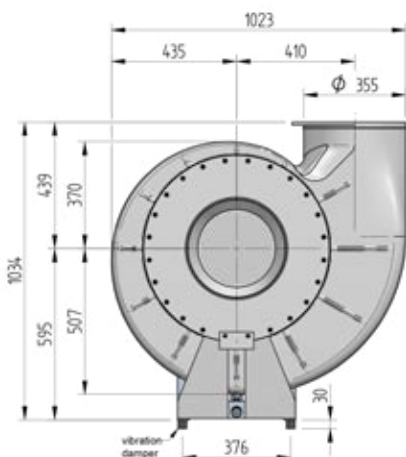
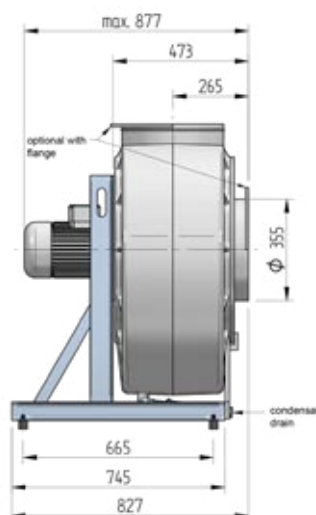


Fans optionally available
for Ex-Zone!
P. 84

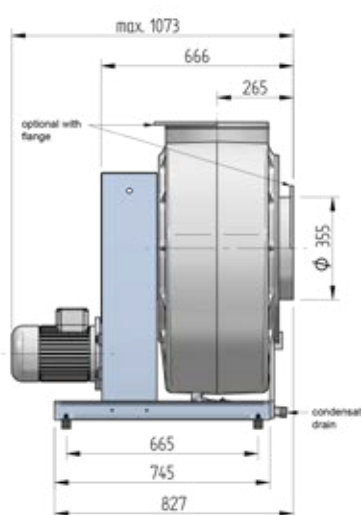
HF - Centrifugal fan
Type series HF R ...-17 D / R



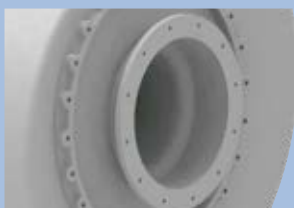
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



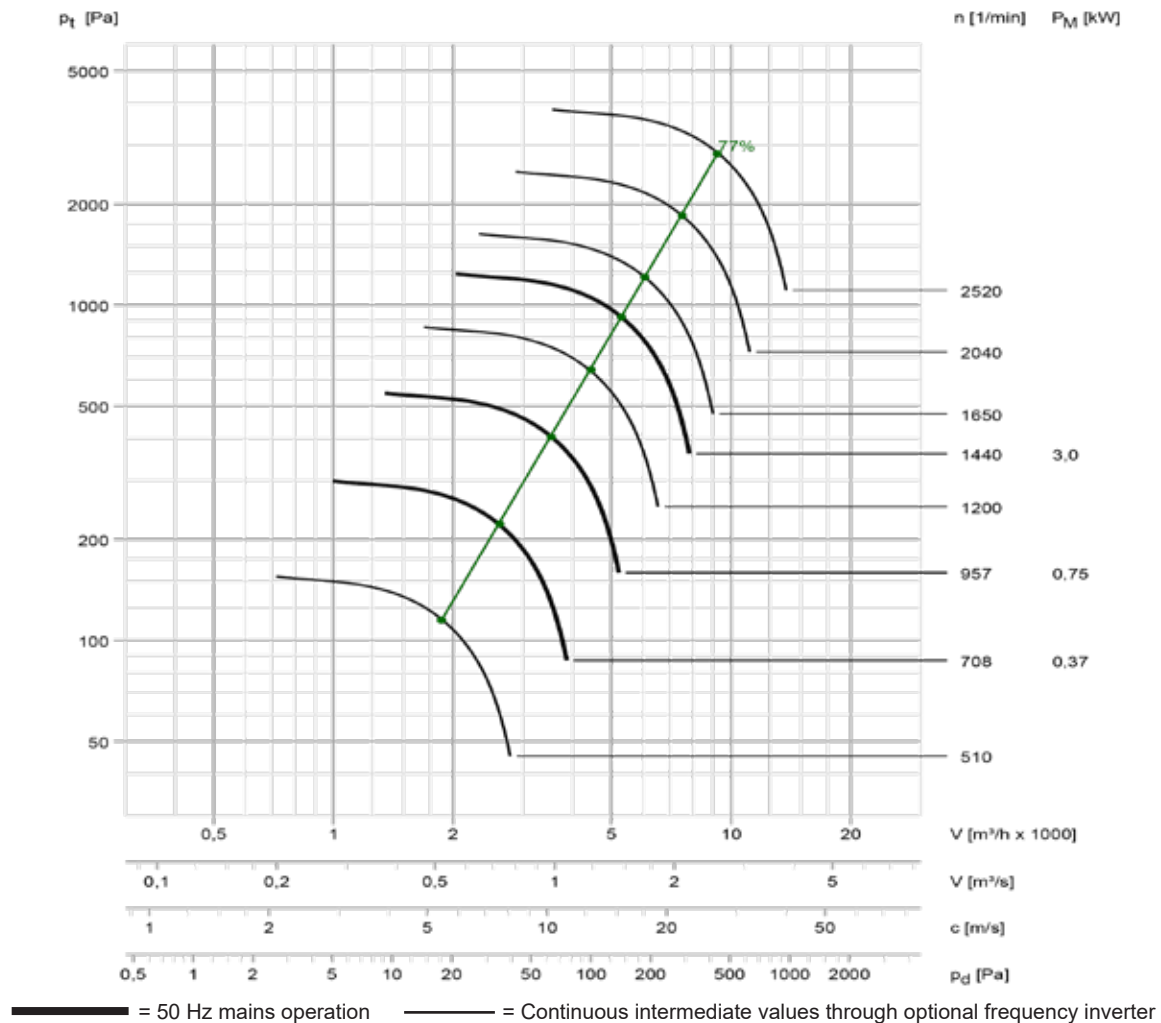
Standard
shaft seal
P. 72



Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
2520	101	100	98	106	92	88	83	77	85
2040	97	69	94	101	88	83	78	71	81
1650	92	91	98	85	81	77	71	64	74
1440	89	88	96	82	78	73	67	61	71
1200	86	85	92	79	74	69	63	56	67
957	80	88	76	72	67	62	55	48	58
708	75	82	69	65	60	54	47	40	52
510	69	76	62	58	52	46	39	30	45



Repair switch
P. 80



Motor cover
P. 74

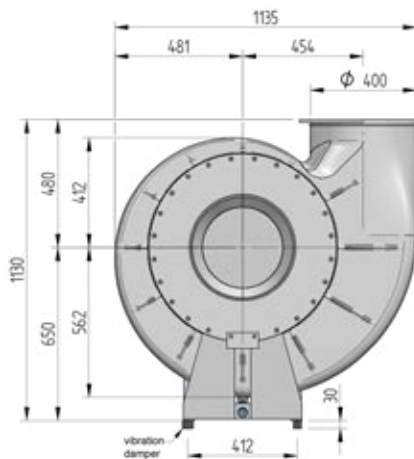


Sound enclosure
P. 75

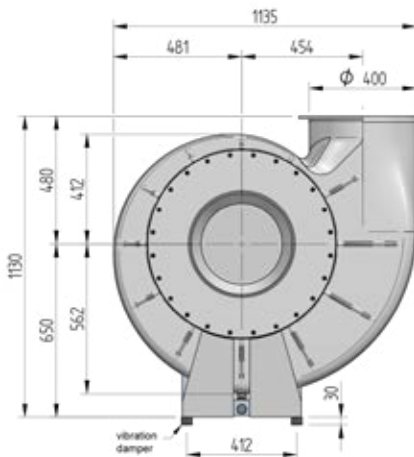
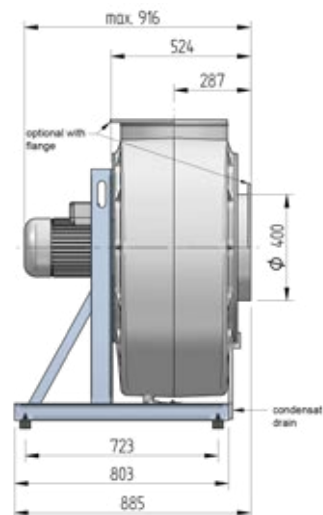


Fans optionally available
for Ex-Zone!
P. 84

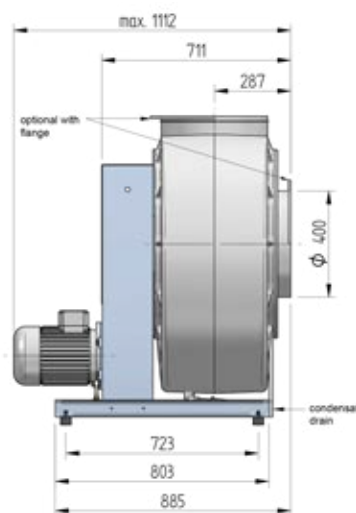
HF - Centrifugal fan
Type series HF R ...-15 D / R
optional for ATEX zone 1
in GR ... or GL ...



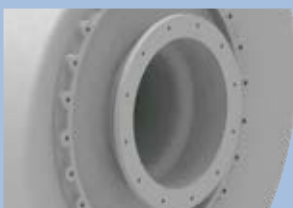
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



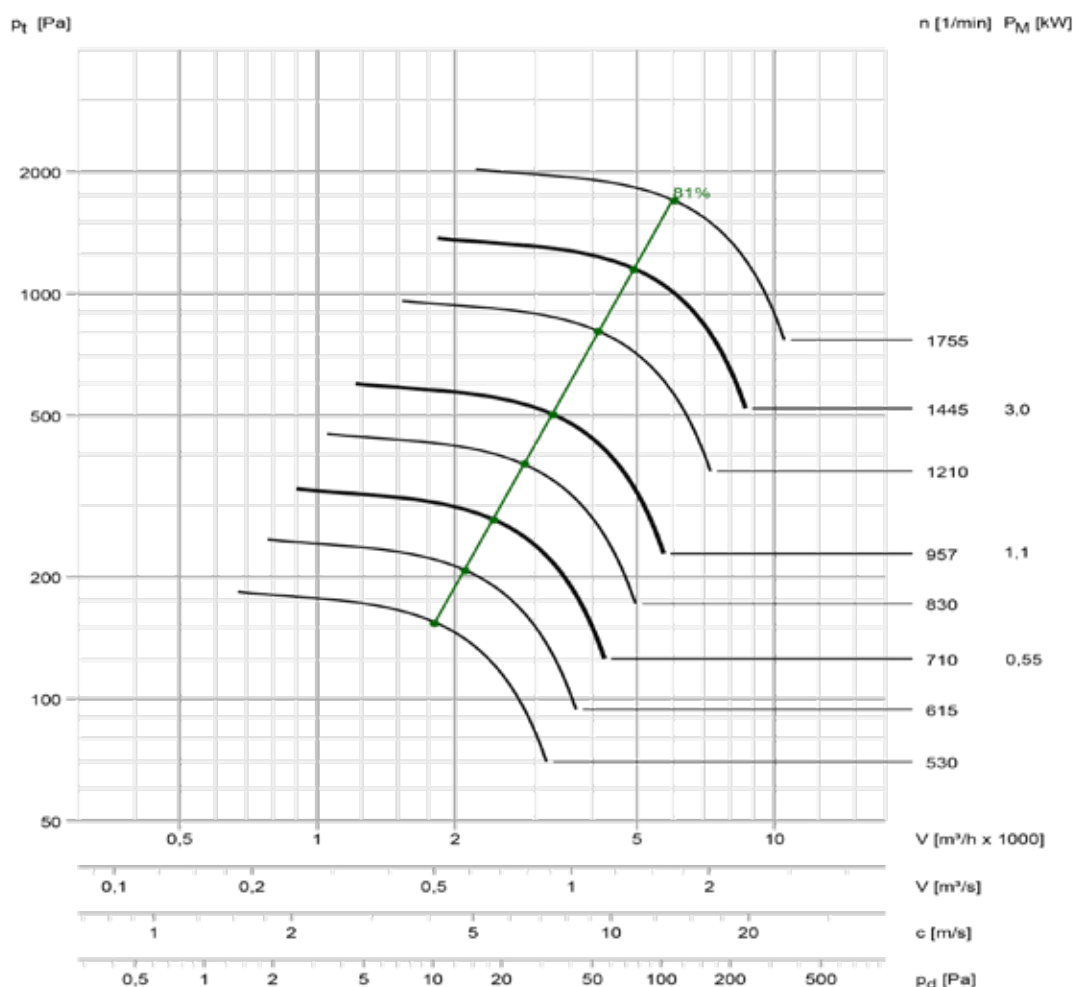
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 400-15 D / R DS1

PPs Impeller



— = 50 Hz mains operation — = Continuous intermediate values through optional frequency inverter

Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
1755	97	105	92	87	81	73	64	54	74
1445	93	101	87	82	75	67	58	47	69
1210	89	96	82	77	70	62	52	41	65
957	84	91	77	71	63	54	44	32	59
830	88	75	70	64	56	47	37	24	50
710	85	71	66	59	51	42	31	19	46
615	82	68	62	55	47	37	26	13	42
530	78	64	58	51	42	32	21	8	39



Repair switch
P. 80



Motor cover
P. 74

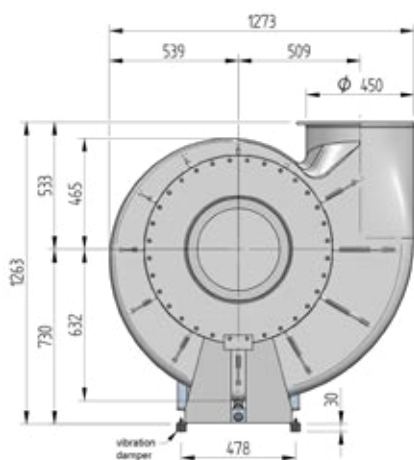


Sound enclosure
P. 75

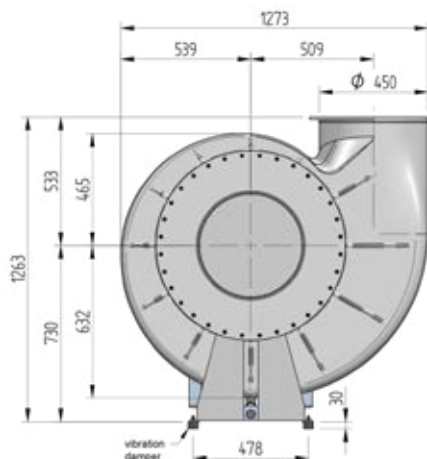
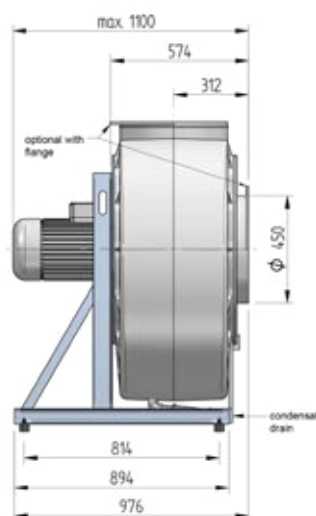


Fans optionally available
for Ex-Zone!
P. 84

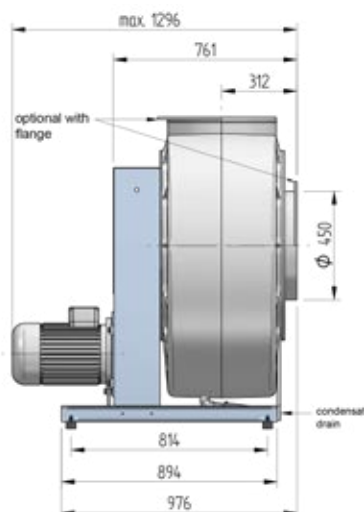
HF - Centrifugal fan
Type series HF R ...-15 D / R



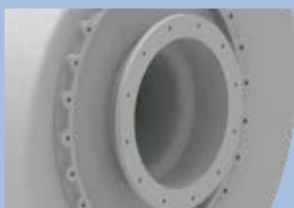
Direct drive



Belt drive (RF)



Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



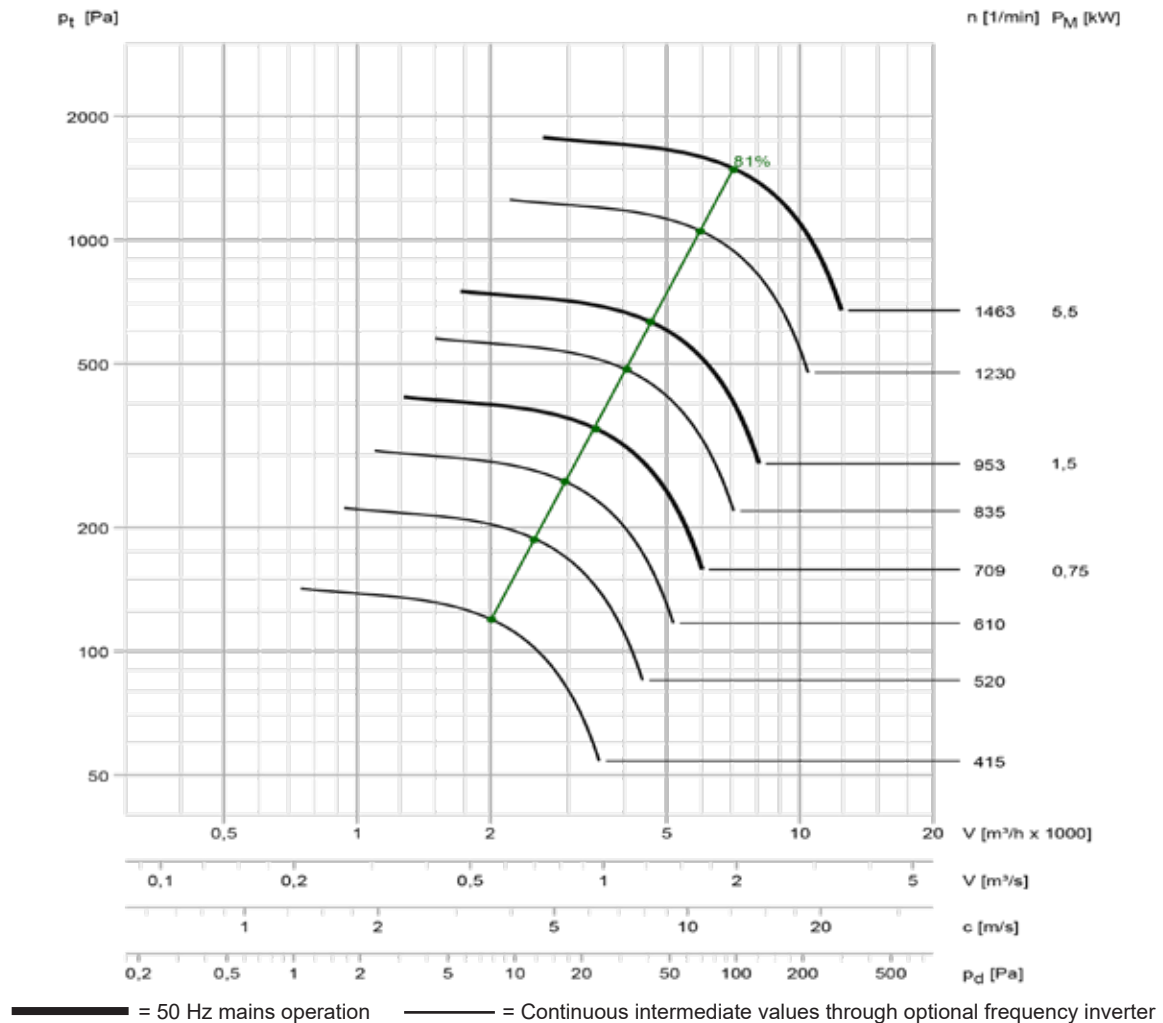
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R 450-15 D / R DS1

PPs Impeller



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
1463	97	105	91	86	79	71	62	51	73
1230	93	101	87	81	74	66	56	45	69
953	88	95	80	74	67	58	48	36	62
835	92	79	74	68	60	51	40	28	53
709	89	75	70	63	55	46	35	22	49
610	85	71	66	59	50	41	29	17	45
520	81	67	61	54	45	35	24	11	41
415	76	61	55	48	38	28	16	2	36



Repair switch
P. 80



Motor cover
P. 74

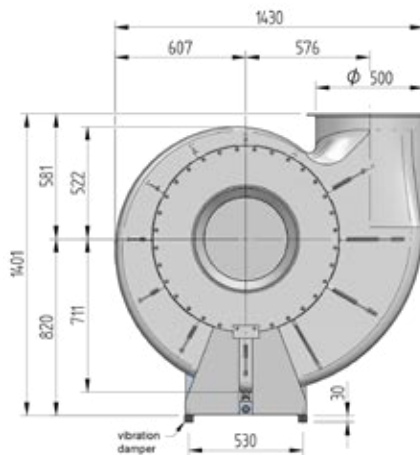


Sound enclosure
P. 75

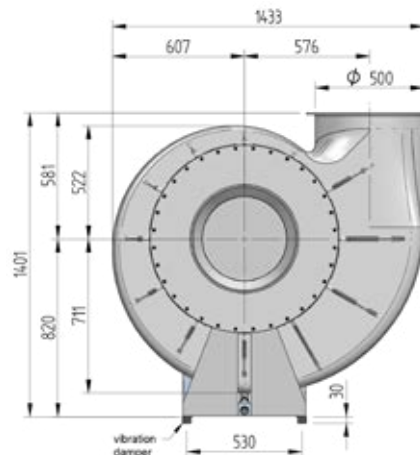
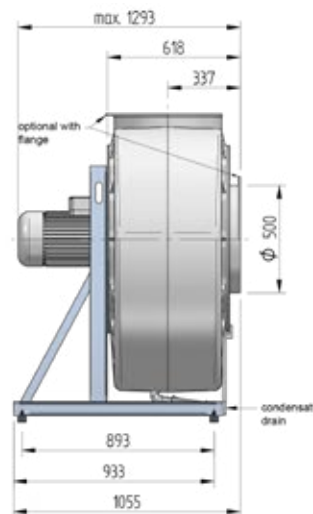


Fans optionally available
for Ex-Zone!
P. 84

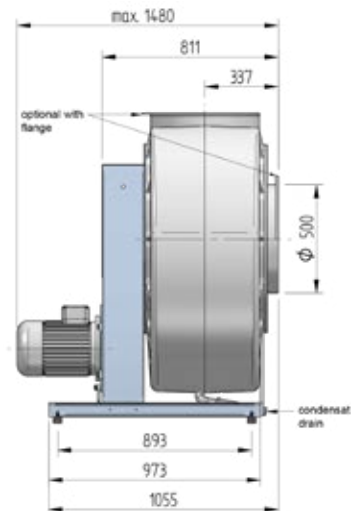
HF - Centrifugal fan
Type series HF R ...-15 D / R
optional for ATEX zone 1
in GR ... or GL ...



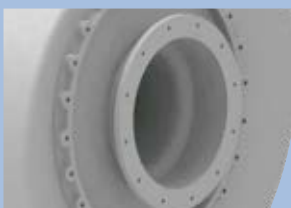
Direct drive



Belt drive (RF)



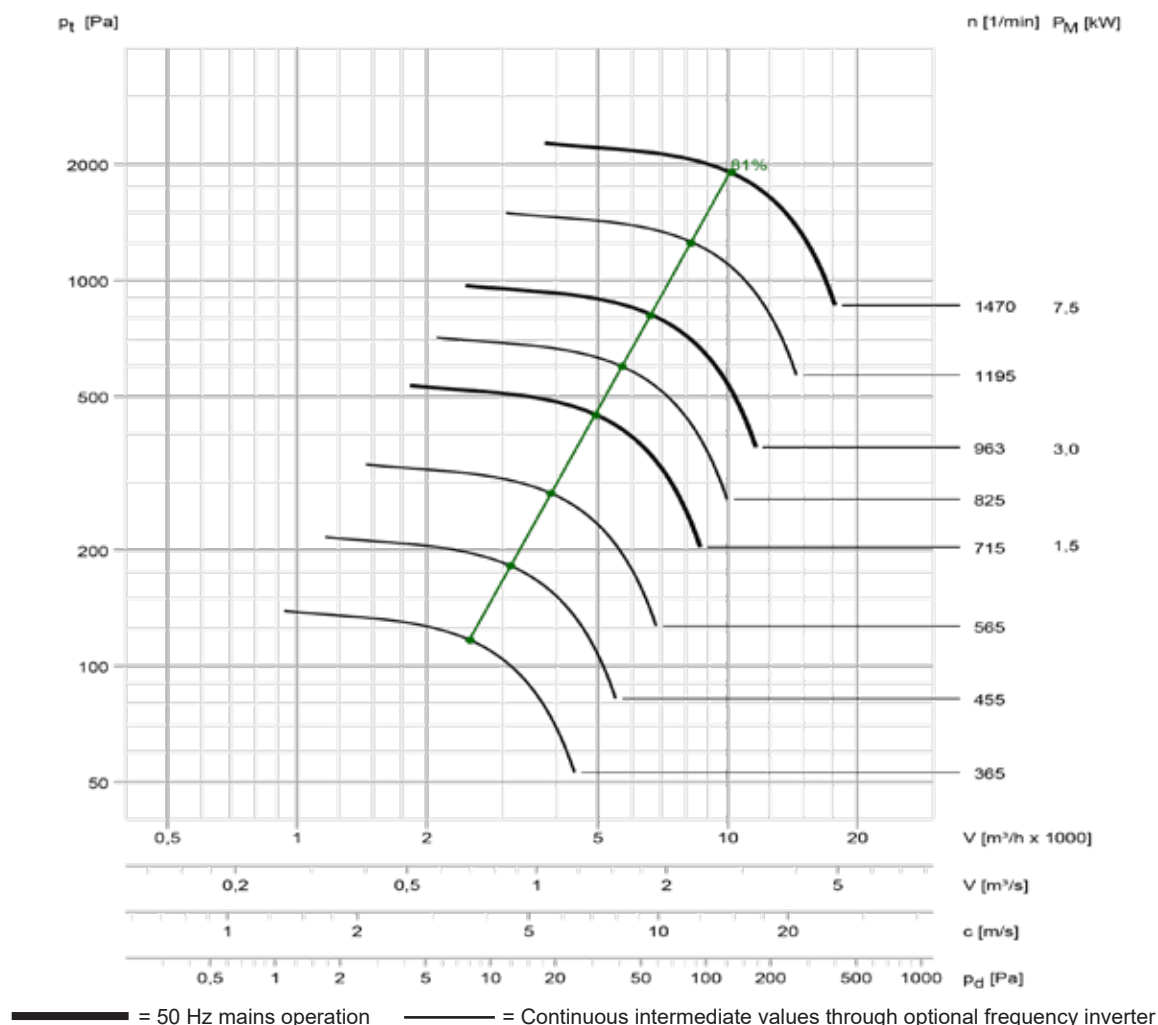
Accessories:


Flange connection
P. 71

Standard
shaft seal
P. 72

Shaft seal
Viton/Hastelloy
P. 72

Protection grid
P. 72



Acoustic level according to VDI 3731									
Speed [1/min]	Inlet level / outlet level of the duct sound level non-valuated; Lw3 = Lw4 [dB]								Lp2A (1 m) [dB(A)]
	63	125	250	500	1000	2000	4000	8000	
1470	101	108	95	90	83	75	66	55	76
1195	96	104	90	84	77	69	59	48	71
963	92	99	84	78	71	62	52	40	66
825	96	82	78	71	64	54	44	32	56
715	92	79	74	67	59	50	39	26	53
565	87	73	67	60	52	42	30	17	47
455	82	68	61	54	45	35	23	9	41
365	77	62	55	47	38	27	15	1	36



Repair switch
P. 80



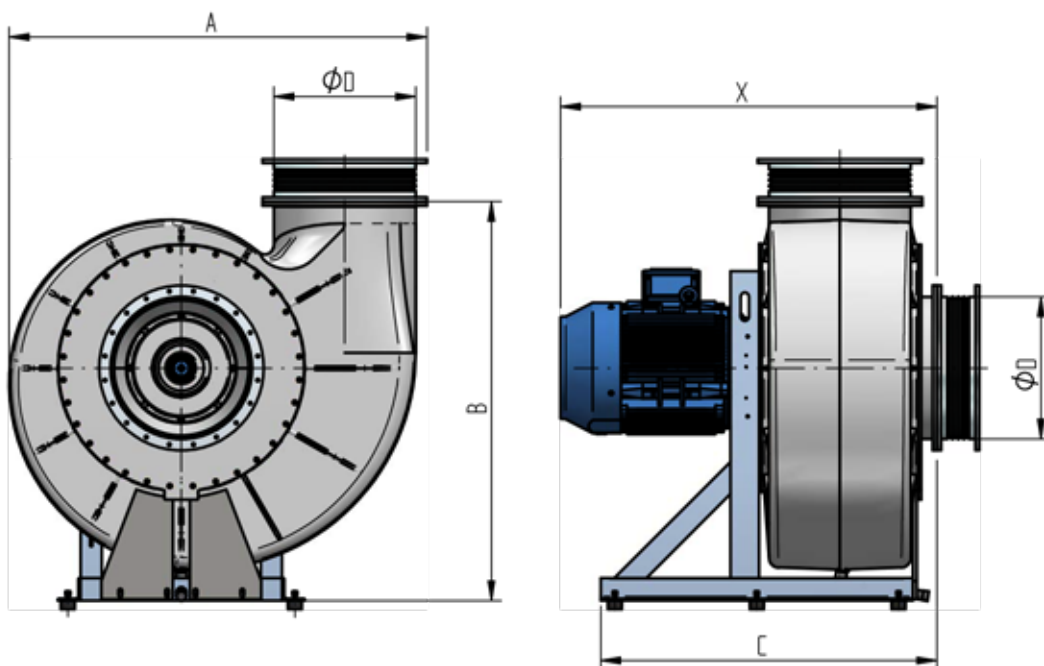
Motor cover
P. 74



Sound enclosure
P. 75



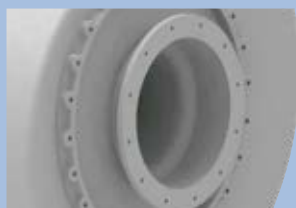
Fans optionally available
for Ex-Zone!
P. 84



Size - Type	Dimensions [mm]				kg*
ØD	A	B	C	X*	
160-15/17	491	746	693	643	71
200-15/17	615	780	783	716	80
250-15/17	762	823	835	844	120
315-15/17	945	1023	1047	1068	245
355-15/17	1063	1149	1009	1110	263
400-15/17	1175	1250	1092	1196	317
450-15/17	1314	1275	1127	1241	345
500-15/17	1473	1406	1185	1327	455

* depending on motor size and motor type
indicated dimensions: DS3 with max. motor

Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72



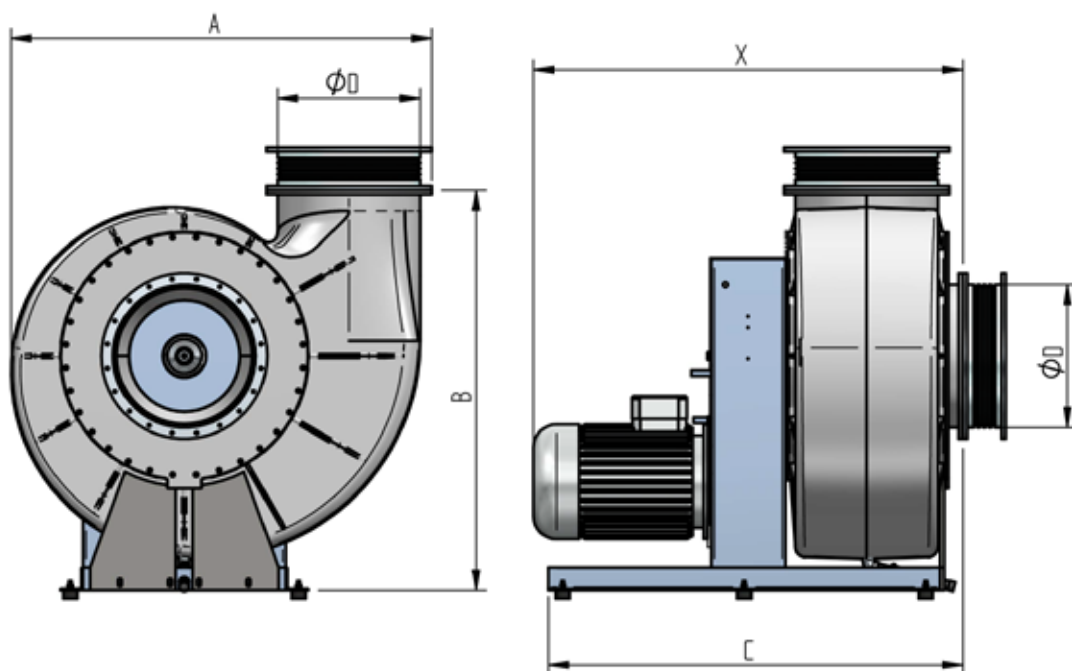
Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R ...-15 / 17 RF DS2/3

Impeller made of FRP | CFRP | steel



Size - Type	Dimensions [mm]				kg*
ØD	A	B	C	X*	
160-15/17	491	738	693	763	80
200-15/17	615	780	855	843	110
250-15/17	762	826	905	974	140
315-15/17	945	1023	1157	1253	340
355-15/17	1062	1139	1199	1247	322
400-15/17	1175	1240	1222	1342	370
450-15/17	1314	1263	1392	1404	645
500-15/17	1473	1401	1448	1460	666

* depending on motor size and motor type
indicated dimensions: DS3 with max. motor



Repair switch
P. 80



Motor cover
P. 74



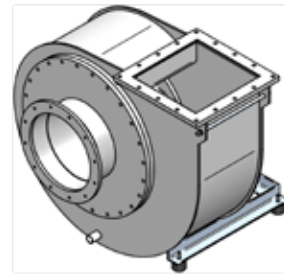
Sound enclosure
P. 75



Fans optionally available
for Ex-Zone!
P. 84

HF R ...-15 / 17 D welded version

HF - Centrifugal fan
Type series HF R ...-15 / 17 D
in welded version



Specification

HF - centrifugal fan direct driven

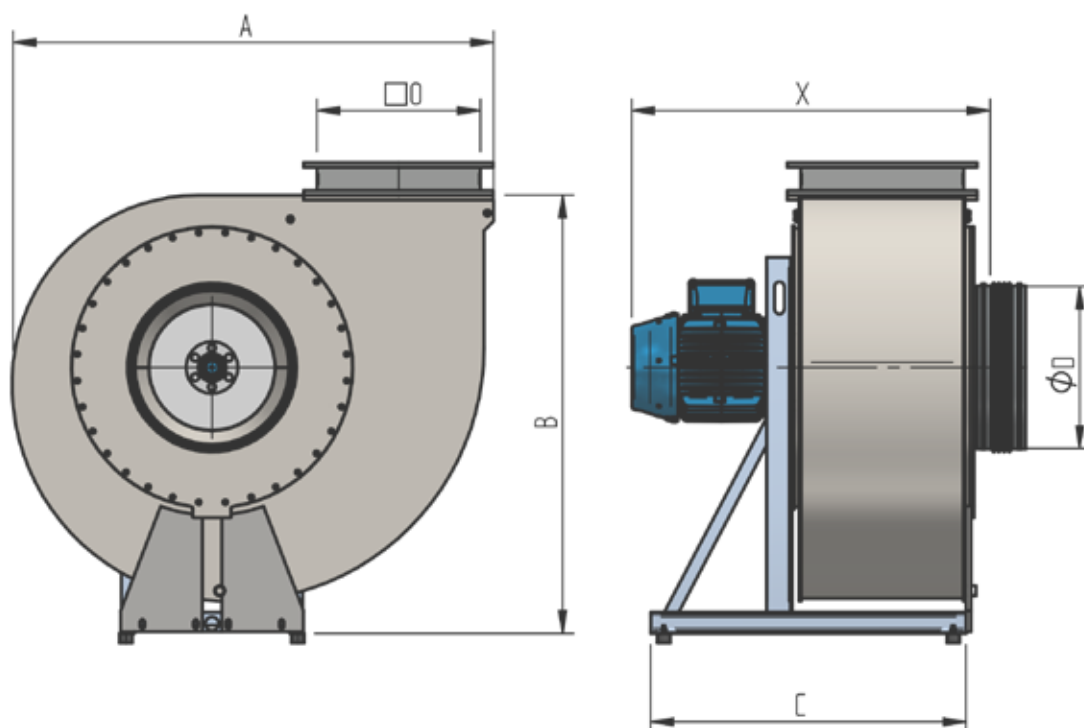
complies with the [European Ecodesign Directive ErP](#)

Corrosion resistant plastic radial fan with housing in thermoplastics, in welded version, one inlet side, condensate drainage at the lowest point of the housing, splinter protection according to accident prevention rules as plastic coated wire mesh, inspection opening on the inlet side.

Impeller with backward curved blades, statically and dynamically balanced, quality of balancing at least G 6.3 (DIN ISO 21940-11), floating-mounted on the motor shaft. Fan frame in strong, welded steel construction, galvanised version, with motor support plate, suitable for fan housing with impeller and motor.

Manufacturer	: HLU	
Type	: HF R ... - .. D	
Housing-material	: ...	
Impeller-material	: ...	
Housing position	: ...	
Inlet diameter	: ...	mm
Medium	: exhaust air	
Volume flow	: ...	m ³ /h
Total pressure difference	: ...	Pa
Static pressure difference	: ...	Pa
Sound pressure level Lp2A(1 m)	: ...	dB(A)
SFP	: ...	W/(m ³ /s)
Motor power	: ...	kW
Voltage	: ...	V
Frequency	: ...	Hz
Rated current	: ...	A
Enclosure / motor protection	: IP 55 / PTC	

HF R ...-15 / 17 D DS1 welded version



Size - Type	Dimensions [mm]				
ØD	A	B	C	□0	X*
160-15/17	511	500	551	172	544
200-15/17	630	592	615	200	601
250-15/17	774	696	707	250	736
315-15/17	954	965	1058	301	858
355-15/17	1073	1083	1001	367	858
400-15/17					
450-15/17	1329	1206	973	450	946
500-15/17	1486	1351	1047	500	1106

* depending on motor size and motor type



Repair switch
P. 80



Motor cover
P. 74



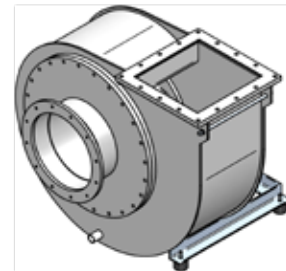
Sound enclosure
P. 75



Fans optionally available
for Ex-Zone!
P. 84

HF R ...-15 / 17 RF welded version

HF - Centrifugal fan
Type series HF R ...-15 / 17 RF
in welded version



Specification

HF - centrifugal fan belt driven

complies with the [European Ecodesign Directive ErP](#)

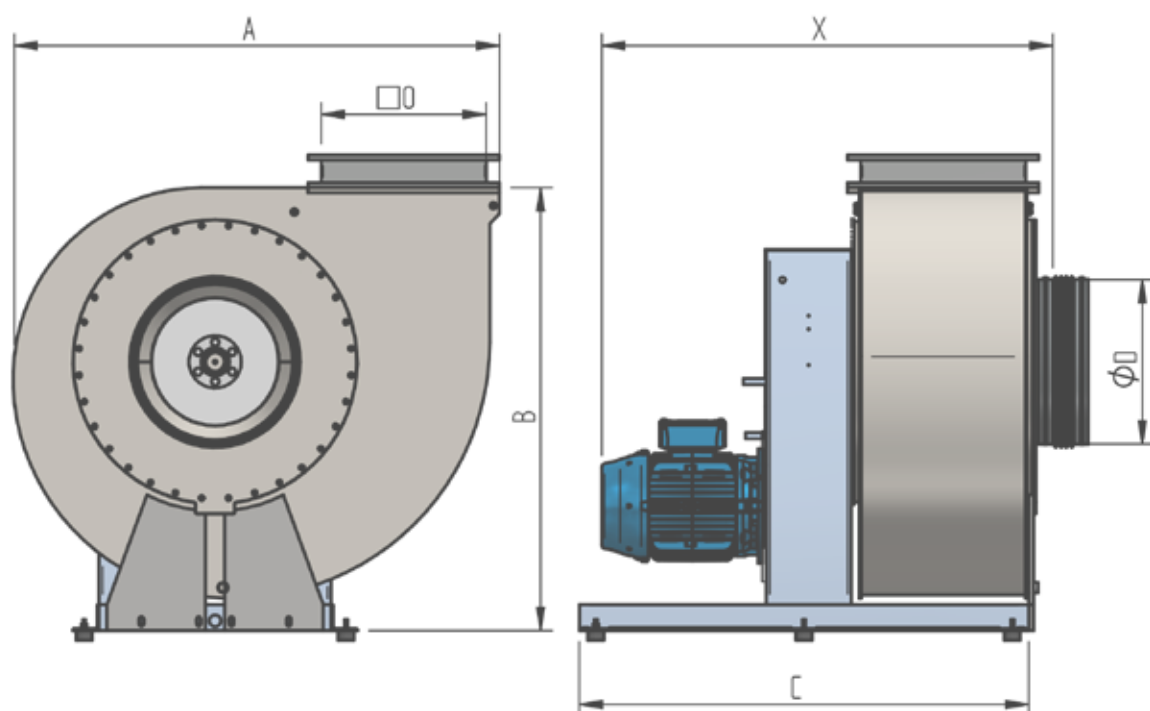
Corrosion resistant plastic radial fan with housing in thermoplastics, in welded version, one inlet side, condensate drainage at the lowest point of the housing, splinter protection according to accident prevention rules as plastic coated wire mesh, inspection opening on the inlet side.

Impeller with backward curved blades, statically and dynamically balanced, quality of balancing at least G 6.3 (DIN ISO 21940-11), floating-mounted via flange double bearing (RF).

Fan frame in strong, welded steel construction, galvanised version, with motor support plate and with belt guard, suitable for fan housing with impeller, for the belt drive and motor.

Manufacturer	: HLU	
Type	: HF R ... - .. RF	
Housing-material	: ...	
Impeller-material	: ...	
Housing position	: ...	
Inlet diameter	: ...	mm
Medium	: exhaust air	
Volume flow	: ...	m ³ /h
Total pressure difference	: ...	Pa
Static pressure difference	: ...	Pa
Sound pressure level Lp2A(1 m)	: ...	dB(A)
SFP	: ...	W/(m ³ /s)
Motor power	: ...	kW
Voltage	: ...	V
Frequency	: ...	Hz
Rated current	: ...	A
Enclosure / motor protection	: IP 55 / PTC	

HF R ...-15 / 17 RF DS1 welded version



Size - Type	Dimensions [mm]				
ØD	A	B	C	ØD	X*
160-15/17	511	500	551	172	
200-15/17	630	592	615	200	
250-15/17	774	696	707	250	
315-15/17	954	965	1058	301	
355-15/17	1073	1083	1001	367	
400-15/17					
450-15/17	1329	1206	973	450	
500-15/17	1486	1351	1047	500	

* depending on motor size and motor type



Repair switch
P. 80



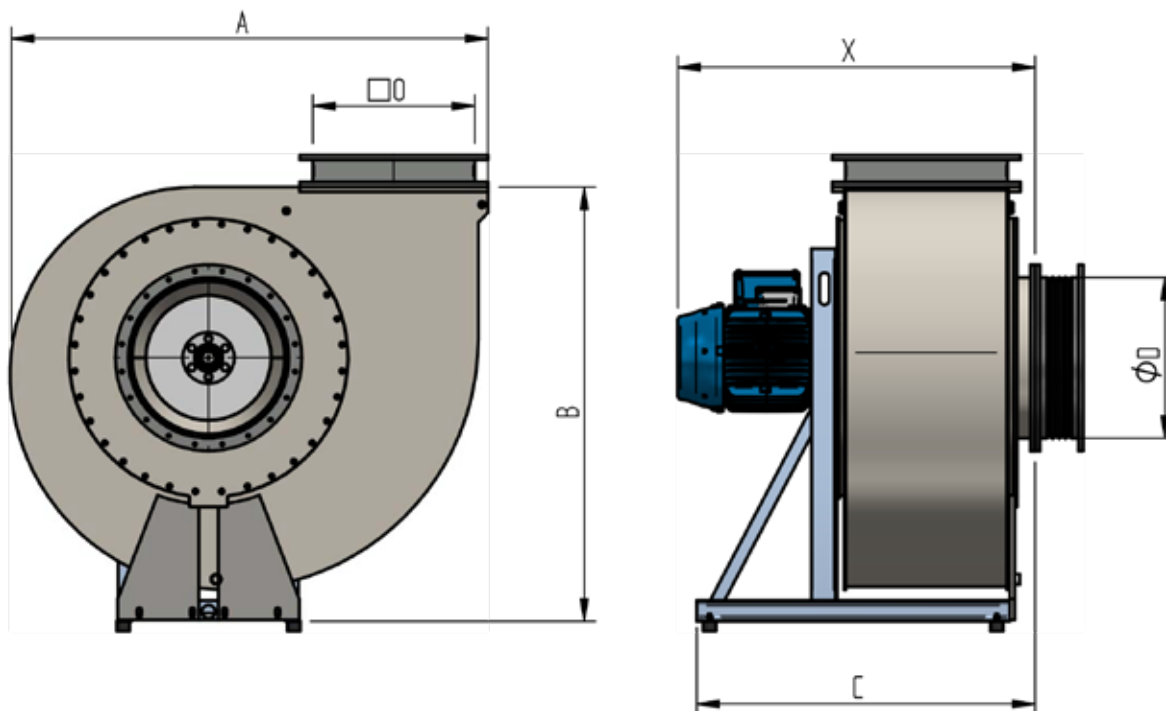
Motor cover
P. 74



Sound enclosure
P. 75



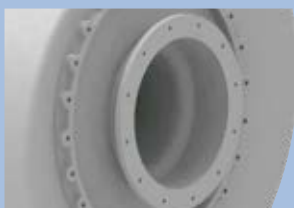
Fans optionally available
for Ex-Zone!
P. 84



Size - Type	Dimensions [mm]				
ØD	A	B	C	□0	X*
160-15/17	511	500	551	172	544
200-15/17	630	592	615	200	601
250-15/17	774	696	707	250	736
315-15/17	954	965	1058	301	858
355-15/17	1073	1083	1001	367	858
400-15/17					
450-15/17	1329	1206	973	450	946
500-15/17	1486	1351	1047	500	1106

* depending on motor size and motor type

Accessories:



Flange connection
P. 71



Standard
shaft seal
P. 72

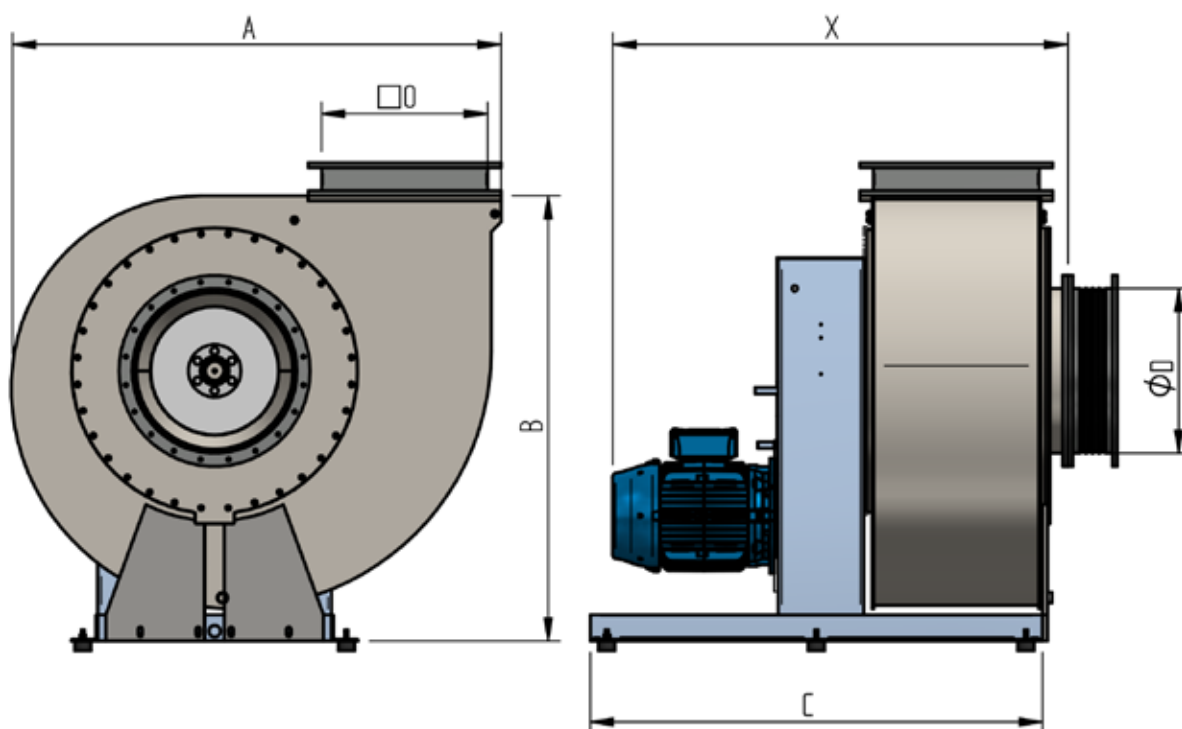


Shaft seal
Viton/Hastelloy
P. 72



Protection grid
P. 72

HF R ...-15 / 17 RF DS2/3 welded version



Size - Type	Dimensions [mm]				
ØD	A	B	C	ØD	X*
160-15/17	511	500	551	172	
200-15/17	630	592	615	200	
250-15/17	774	696	707	250	
315-15/17	954	965	1058	301	
355-15/17	1073	1083	1001	367	
400-15/17					
450-15/17	1329	1206	973	450	
500-15/17	1486	1351	1047	500	

* depending on motor size and motor type



Repair switch
P. 80



Motor cover
P. 74

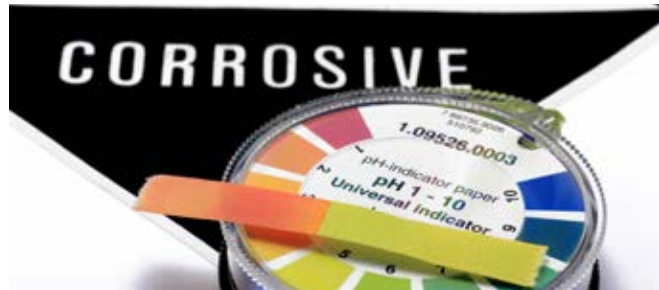


Sound enclosure
P. 75



Fans optionally available
for Ex-Zone!
P. 84

Thermoplastic



PE

Standard colour
RAL 9005

PEs

Sintered
housing
Standard colour
RAL 7036

Polyethylene | PE

Polyethylene flame retardant | PEs

Features

- ✓ Good resistance to inorganic acids
- ✓ High UV resistance
- ✓ Good low temperature impact resistance
- ✓ Attractive price
- PEs: Standard material for sintered housings

PP

Standard colour
RAL 7032

PPs

Standard colour
RAL 7037

Polypropylene | PP

Polypropylene flame retardant | PPs

Features

- ✓ Good resistance to inorganic acids
- ✓ Good mechanical strength
- ✓ Attractive price
- PPs: Standard material for thermoplastic impellers

PPs-el

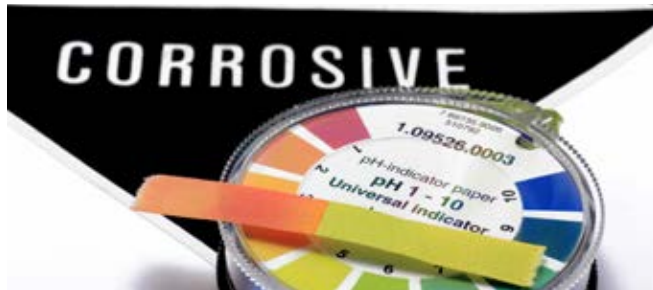
Standard colour
black



Polypropylene flame-retardant, electrically conductive | PPs-el

Features

- ✓ Good resistance to inorganic acids
- ✓ Suitable for ATEX zone 1



Thermoplastic

PVC

Standard colour
RAL 7011

Polyvinyl chloride | PVC

Features

- ✓ Very good resistance to many chemicals (e.g. chromic acid, chlorine, ozone)
- ✓ Attractive price
- ✓ Can be glued

PVDF

Standard colour
white (natural)

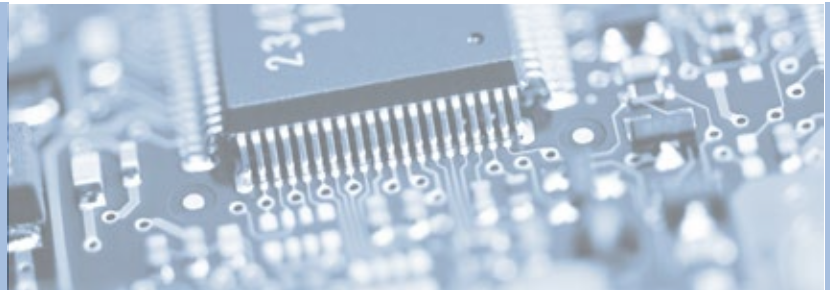
Polyvinylidene fluoride | PVDF

Features

- ✓ Very high chemical resistance
- ✓ High thermal resistance (up to 100 °C)

Housing and/or impellers made of FRP

Fibre-reinforced plastic

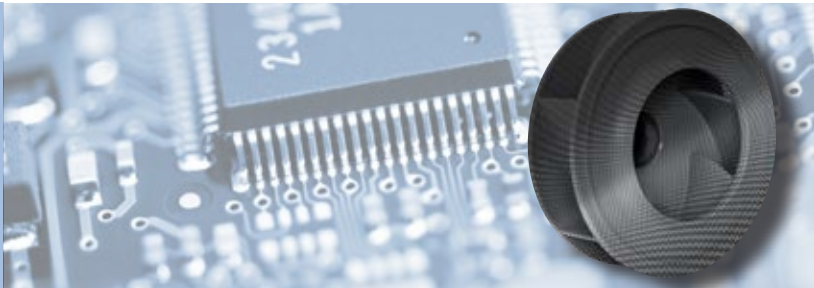


Features

- Fibre-plastic composite consisting of a synthetic material and glass fibres.
Vinyl ester resins which, when cured, form thermosetting plastics of high strength and chemical resistance are used as standard.

Advantages

- Corrosion-free in highly aggressive environments
- UV and weather resistant
- Long service life
- Inexpensive fibre-reinforced material
- Low specific weight
- Outstanding weight-specific strength
- No plastic deformation, high fatigue strength
- Self-extinguishing, does not drip in case of fire
- Cold and heat resistant
- Available in an electrically conductive version for zone 1

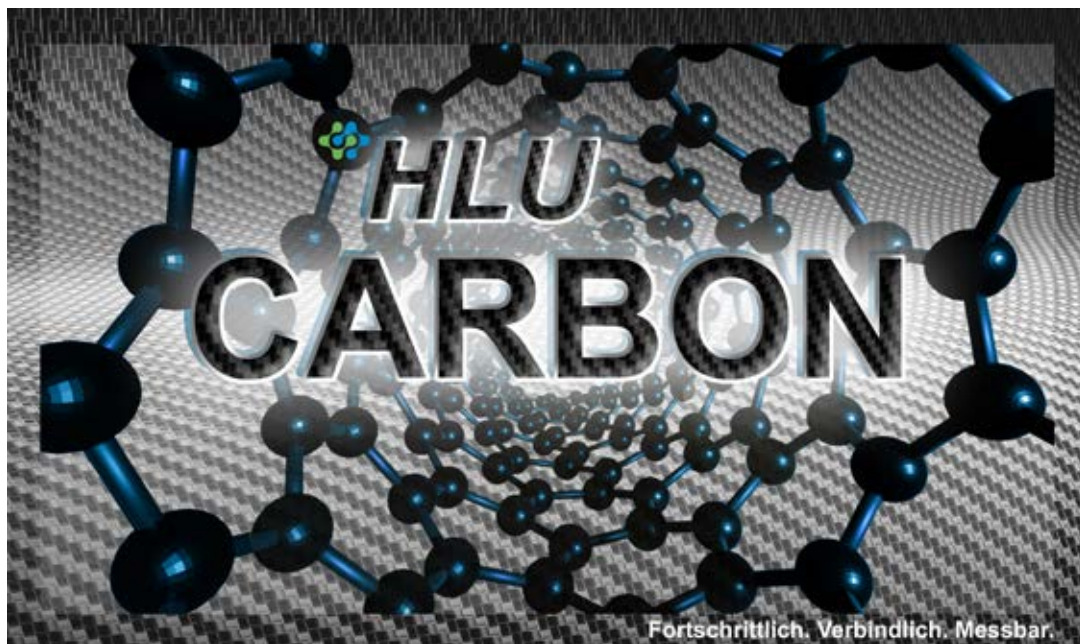


Fibre-reinforced plastic

Carbon fibre reinforced plastic - Carbon | CFRP

The material CFRP is obtained by embedding carbon fibres in a plastic matrix. The matrix, which consists of synthetic resin, thermosets or thermoplastics, for example, firmly bonds the carbon fibres together.

Thanks to its weight advantage in conjunction with its high strength and corrosion-resistant properties, carbon is the material for the highest standards of resistance and strength.



Features

- Fibre-plastic composite consisting of a synthetic material and glass fibres.
Vinyl ester resins which, when cured, form thermosetting plastics of high strength and chemical resistance are used as standard.

Advantages

- Corrosion-free in highly aggressive environments, even with hydrofluoric acid (HF)
- UV and weather resistant
- Long service life
- Very high tensile and compressive strength
- Low specific weight
- Very good dynamic behaviour for very high circumferential speeds
- Self-extinguishing, does not drip in case of fire
- Cold and heat resistant
- Available in an electrically conductive version for zone 1

Steel impellers with coating



Features

- Impellers made of steel materials with chemically resistant coating. The use of different coating materials makes it possible to adapt the impellers to the operating conditions.
- Outstanding corrosion protection
- High temperature resistance
- High chemical resistance
- Scratch resistance

Halar[®]

- Very good resistance to chemicals, solvents and hydrofluoric acid (HF)
- Good mechanical properties
- Diffusion barrier
- Non-flammable
- High disruptive strength
- Very good resistance to weathering
- Colour: dark grey-olive

Amkophen F12[®] | Zacosin 2012[®]

- Thermosetting duroplast
- Basis: Phenol-formaldehyde resin
- Chemical resistance: pH range 1 – 8
- Colour: dark green

VHE 109[®] | Chemonit 31[®] hard rubber coating

- Long-term chemical resistance and impermeability
- Long-term thermal resistance
- Long-term mechanical load-bearing capacity
- Very good adhesion to the substrate
- Colour: reddish brown



Thermoplast Kunststoff

UV and weathering resistance

Plastics used by HLU, such as PE(s), PE-el, PP(s), PPs-el, PVC, PVDF, FRP, CFRP are characterised by excellent weather resistance and UV stabilization.

HLU-products made of the mentioned materials are designed for a high durability under harsh conditions with highly corrosive, toxic and in some cases inflammable media. Plastic materials are also absolutely resistant to rain, moisture and seawater. The material thickness is selected to withstand any ageing phenomena on the surface caused by ultraviolet radiation.

For most plastic installations, the lifetime for outdoor installation in the European climate is beyond 20 years. In regions with very high year-round UV radiation (deserts, drylands), we will gladly check the specific case to meet the requirements for chemical and weather resistance.

Depending on the application, the necessary metal parts are protected by galvanisation, powder coating or stainless steel.

Motors and other electrical components are minimum IP44 when installed outdoors, and can be equipped with a protective cover to increase the lifetime.

Accessories for
HF - Centrifugal fans
Type series HF R ...-15 / 17

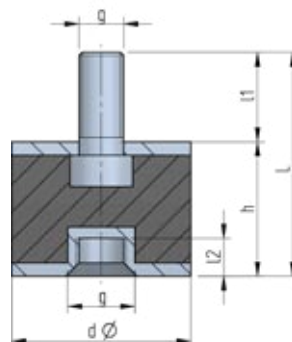


Vibration dampers

Protect against vibrations



Size	Article no.	Dimensions				
		h	g	L	l1	l2
20	441-065-000000	15	M6	30	15	6
30	441-065-000001	30	M8	50	20	8
40	441-065-000002	30	M8	54	24	8
50	441-065-000003	30	M10	64	34	8
70	441-065-000005	45	M10	70	25	8



Vibration dampers for ceiling mounting

Rubber vibration damper for ceiling mounting and tensile load



	Article no.
Load range: 8 - 65,2 kg	441-065-000007

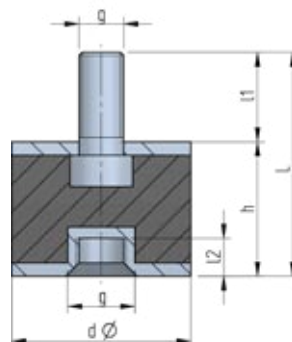


Accessories for
HF - Centrifugal fans
Type series HF R ...-15 / 17

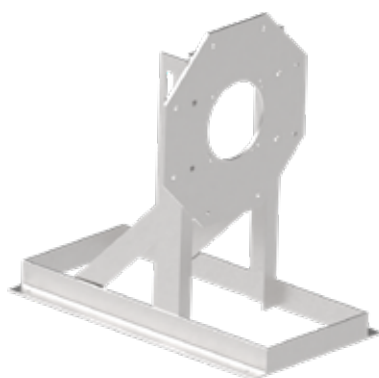
Vibration dampers stainless steel



Size	Article no.	Dimensions				
		h	g	L	l1	l2
20	441-065-000008	15	M6	30	15	6
30	441-065-000009	30	M8	50	20	8
40	441-065-000013	30	M8	54	24	8
50	441-065-000014	30	M10	64	34	8
70	441-065-000016	45	M10	70	25	8



Frame stainless steel



Stainless steel	Article no.
V2A	441-097-000000
V4A	441-097-000001

Accessories for
HF - Centrifugal fans
Type series HF R ...-15 / 17



Sleeve with VA tightening straps

For easy flexible connection to duct



Size	Inlet side	Outlet side
Ø	Article no.	Article no.
125	441-063-100000	441-064-100000
140	441-063-100001	441-064-100001
160	441-063-100002	441-064-100002
180	441-063-100003	441-064-100003
200	441-063-100004	441-064-100004
250	441-063-100005	441-064-100005
280	441-063-100006	441-064-100006
315	441-063-100007	441-064-100007
355	441-063-100008	441-064-100008
400	441-063-100009	441-064-100009
450	441-063-100010	441-064-100010
500	441-063-100011	441-064-100011

Sleeve with VA tightening straps

For easy flexible connection to duct



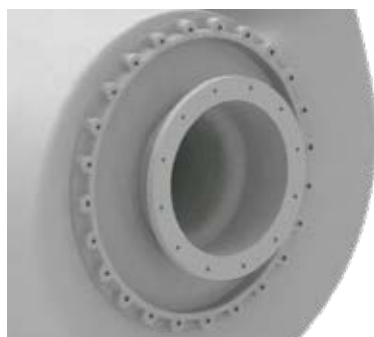
Size	Inlet side	Outlet side
Ø	Article no.	Article no.
125	441-063-000000	441-064-000000
140	441-063-000001	441-064-000001
160	441-063-000002	441-064-000002
180	441-063-000003	441-064-000003
200	441-063-000004	441-064-000004
250	441-063-000005	441-064-000005
280	441-063-000006	441-064-000006
315	441-063-000007	441-064-000007
355	441-063-000008	441-064-000008
400	441-060-400000	441-061-400000
450	441-063-000010	441-064-000010
500	441-063-000011	441-064-000011



Accessories for
HF - Centrifugal fans
Type series HF R ...-15 / 17

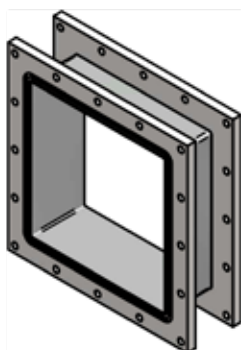
Flange connection

Recommended for higher demands on tightness and at higher pressures



Size	Inlet side	Outlet side
Ø	Article no.	Article no.
125	441-060-125000	441-061-125000
140	441-060-140000	441-061-140000
160	441-060-160000	441-061-160000
180	441-060-180000	441-061-180000
200	441-060-200000	441-061-200000
250	441-060-250000	441-061-250000
280	441-060-280000	441-061-280000
315	441-060-315000	441-061-315000
355	441-060-355000	441-061-355000
400	441-060-400000	441-061-400000
450	441-060-450000	441-061-450000
500	441-060-500000	441-061-500000

Manschette in eckiger Ausführung



Size	Outlet side
Ø	Article no.
125	420-006-100000
140	420-006-100001
160	420-006-100002
180	420-006-100003
200	420-006-100004
250	420-006-100005
280	420-006-100006
315	420-006-100007
355	420-006-100008
400	420-006-100009
450	420-006-100010
500	420-006-100011

Accessories for HF - Centrifugal fans Type series HF R ...-15 / 17



Standard shaft seal

Protects against leakage at the shaft passage



Sealing system as a non-contact gap seal. Long service life due to wear-free design. All variants suitable for use in temperature class T4, as no self-heating due to friction. Not ideal for high demands on tightness and with humid fluids.

Shaft seal Viton/Hastelloy

Protects against leakage at the shaft passage



High-quality sealing system with lip seal made of fluororubber and shaft sleeve made of highly corrosion-resistant nickel-based alloy. Resistant to all inorganic acids, alkalis and hydrocarbons commonly used in chemical plant construction. Very suitable for humid medium.

Protection grid

Protects against foreign bodies



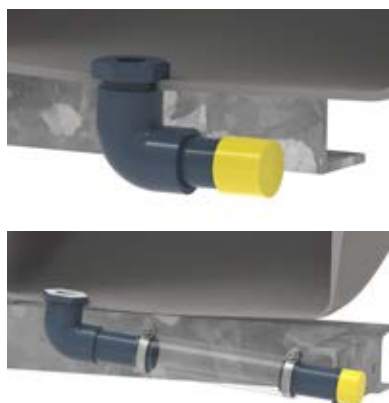
Size	Inlet side	Outlet side
Ø	Article no.	Article no.
125	441-020-125000	441-021-125000
140	441-020-140000	441-021-140000
160	441-020-160000	441-021-160000
180	441-020-180000	441-021-180000
200	441-020-200000	441-021-200000
250	441-020-250000	441-021-250000
280	441-020-280000	441-021-280000
315	441-020-315000	441-021-315000
355	441-020-355000	441-021-355000
400	441-020-400000	441-021-400000
450	441-020-450000	441-021-450000
500	441-020-500000	441-021-500000



Accessories for
HF - Centrifugal fans
Type series HF R ...-15 / 17

Condensedrain

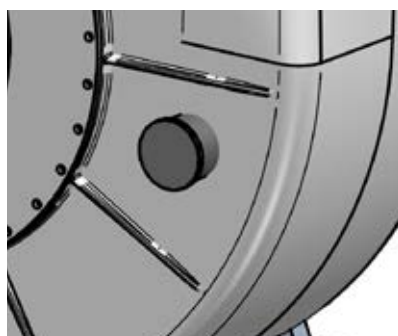
Standard version, mounted on each fan at the factory



Size	on housing volute
Ø	Article no.
125	438-881-000000
140	438-881-000000
160	438-881-000000
180	438-881-000000
200	438-881-000000
250	438-881-000000
280	438-881-000000
315	438-881-000000
355	438-881-000001
400	438-881-000001
450	438-881-000001
500	438-881-000001

Inspection hole

Inspection hole welded on the housing volute or housing front wall of the fan



Size	on housing volute	on housing front wall
Ø	Article no.	Article no.
125	441-070-000004	441-070-000000
140	441-070-000004	441-070-000000
160	441-070-000005	441-070-000001
180	441-070-000005	441-070-000001
200	441-070-000005	441-070-000001
250	441-070-000005	441-070-000001
280	441-070-000005	441-070-000001
315	441-070-000006	441-070-000002
355	441-070-000006	441-070-000002
400	441-070-000006	441-070-000002
450	441-070-000006	441-070-000002
500	441-070-000006	441-070-000002

Accessories for
HF - Centrifugal fans
Type series HF R ...-15 / 17



Motor cover

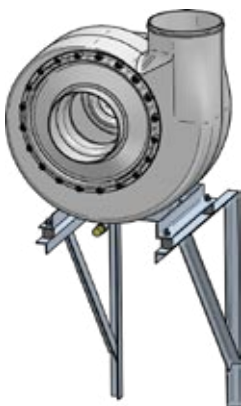
Protects the electric motor from weather influences



Size	Steel, galvanized	PVC
Ø	Article no.	Article no.
125	441-030-125000	441-030-125001
140	441-030-140000	441-030-140001
160	441-030-160000	441-030-160001
180	441-030-180000	441-030-180001
200	441-030-200000	441-030-200001
250	441-030-250000	441-030-250001
280	441-030-280000	441-030-280001
315	441-030-315000	441-030-315001
355		441-030-355001
400		441-030-400001
450		441-030-450001
500		441-030-500005

Wall bracket set

For easy wall mounting



Size	Steel, galvanized
Ø	Article no.
125	017-829-102000
140	017-829-102000
160	017-829-104000
180	017-829-104000
200	017-829-106000
250	017-829-106000
280	017-829-108000
315	017-829-108000
355	017-829-110000
400	017-829-112000
450	017-829-112001
500	017-829-112001



Accessories for
HF - Centrifugal fans
Type series HF R ...-15 / 17

Sound enclosure GR 360° | Direct drive

Reduces the sound emission from the fan



Size	Steel, galvanized	Plastic PP
Ø	Article no.	Article no.
125	440-820-000035	440-023-012500
140	440-820-000037	440-023-014000
160	440-820-000059	440-023-016001
180	440-820-000048	440-023-018000
200	440-820-000054	440-023-020000
250	440-820-000045	440-023-125000
280	440-820-000062	
315	440-820-000056	
355	440-820-000072	
400	440-820-000080	
450	440-820-000086	
500	440-820-000019	

Version in steel, galvanized:

- Frame construction with panels for easy access via turning bolt
- Suitable for outdoor installation
- Supply and exhaust air grille for self-ventilation with damped openings
- The scope of delivery includes bushings for air ducts, condensate drain, electro cables as well as lifting lugs and mounting profiles for steel construction or floor.
- Sound level reduction as standard approx. 14 dB at 250 Hz, versions for higher sound insulation requirements are available as an option

Version in plastic PP:

- Welded construction made of corrosion-resistant plastic twinwall panels access via door
- Suitable for outdoor installation
- Supply and exhaust air grille for self-ventilation with damped openings
- The scope of delivery includes bushings for air ducts, condensate drain, electro cables as well as lifting lugs and machine base.
- Sound level reduction approx. 10 dB at 250 Hz

Accessories

Automatic louver damper for HF - Centrifugal fans



Application

- Use in conjunction with exhaust air fans in the laboratory to avoid undesirable air flows when the fan is at a standstill.

Design

- Nominal connection sizes from 110 to 500 mm
- Installation position vertically in the line
- Standard connection with round sleeves for direct welding
- Blade area square
- Blades made of rigid PVC cavity-type profiles and with free-floating mounting in the housing
- Housing made as standard from PP material, other materials optionally available

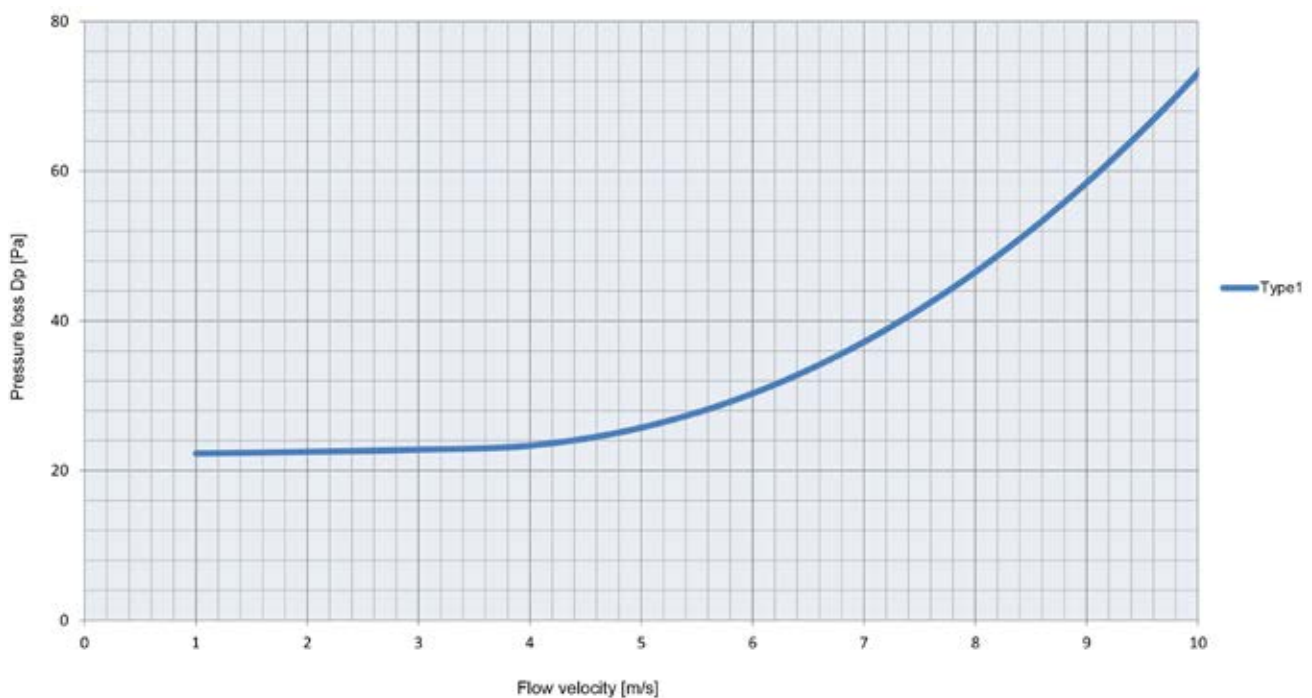
Advantages

- Made of chemically resistant plastics
- Ideal for use in aggressive exhaust air
- Prevents heat losses and contamination of laboratory equipment at low cost

Conditions of use

- Max. air velocity should not exceed 10 m/s
- Operating temperature: 0 °C to + 40 °C
- Recommended inflow route:
1 x = connection diameter in order to prevent unfavourable flow velocities and associated pressure losses

Pressure loss characteristic





Accessories
Automatic louver damper
for HF - Centrifugal fans

Specification

HF - louver damper

Automatic louver damper made of chemically resistant plastics, flap housing with square blade area and round sleeve connections for direct welding / bonding into the pipe, dimensionally stable blades made of PVC cavity-type profiles with free-floating mounting in the housing.

All components coming into contact with the exhaust air medium are made of chemically resistant plastics.

Brand	: HLU
Type	: HF - JKS1
Connection diameter	: ... mm
Housing material	: PPs
Blade material	: PVC
Connection	: Sleeve connection
Installation position	: vertical fitting of the pipe

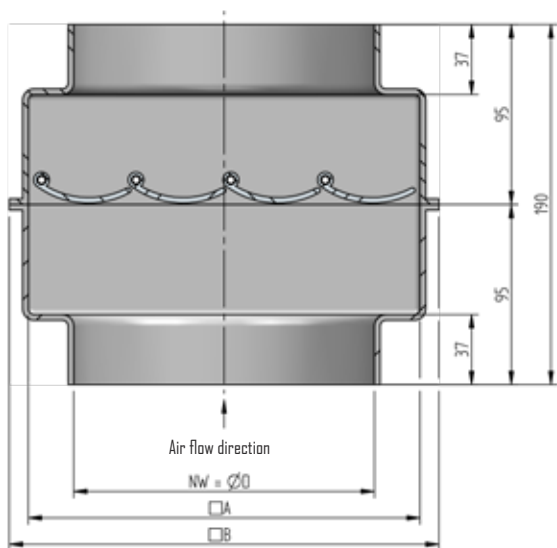
Brand	: HLU
Type	: HF - JKS3
Connection diameter	: ... mm
Housing material	: PPs
Blade material	: PVC
Connection	: selbsttätig, beidseitig mit Muffenanschluß
Installation position	: horizontal fitting of the pipe

Accessories

Automatic louver damper for HF - Centrifugal fans

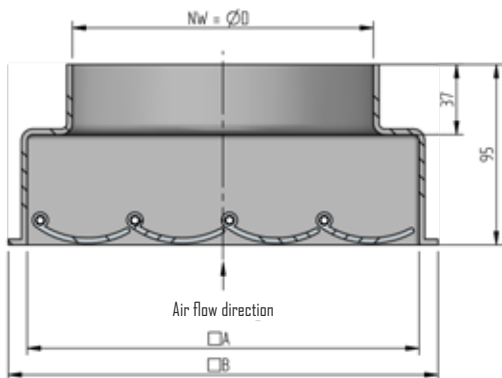


JKS1



Size	Dimension [mm]		PPs Housing	PPs-el Housing
Ø	A	B	Article no.	Article no.
110	157	177	407-015-007000	407-375-007000
125	157	177	407-015-008000	407-375-008000
140	157	177	407-015-009000	
160	207	227	407-015-010000	407-375-010000
180	207	227	407-015-010500	
200	247	267	407-015-011000	407-375-011000
250	250	270	407-015-012000	407-375-012000
315	357	385	407-015-013000	407-375-013000
355	405	435	407-015-014000	407-375-014000
400	405	435	407-015-015000	407-375-015000
500	560	590	407-015-016000	407-375-016000

JKS2

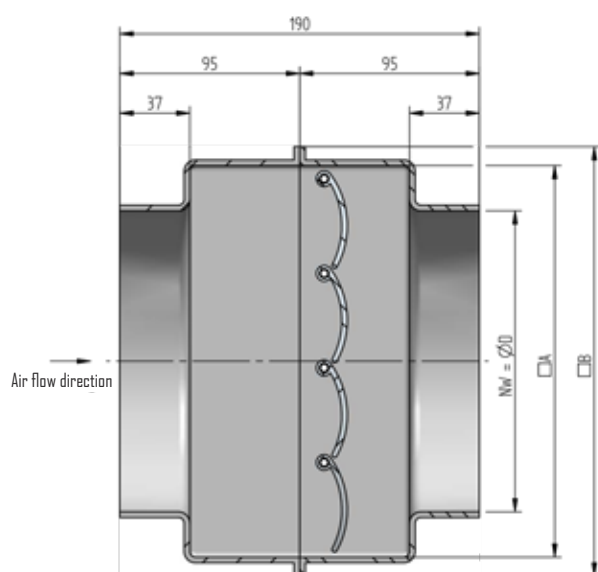


Size	Dimension [mm]		PPs Housing	PPs-el Housing
Ø	A	B	Article no.	Article no.
110	157	177	407-015-017051	
125	157	177	407-015-018000	
140	157	177	407-015-019000	
160	207	227	407-015-020000	
180	207	227		
200	247	267	407-015-021000	407-375-021000
250	250	270	407-015-022000	
315	357	385	407-015-023000	
355	405	435	407-015-024000	
400	405	435	407-015-025000	
450		590	407-015-025050	
500	560	590	407-015-026000	



Accessories
Automatic louver damper
for HF - Centrifugal fans

JKS3



Size	Dimension [mm]		PPs Housing	PPs-el Housing
Ø	□A	B	Article no.	Article no.
110	157	177	407-015-030000	
125	157	177	407-015-032000	407-375-000125
140	157	177	407-015-033000	
160	207	227	407-015-034000	407-375-034000
180	207	227		
200	247	267	407-015-036000	407-375-036000
250	250	270	407-015-038000	407-375-038000
315	357	385	407-015-040000	407-375-040000
355	405	435	407-015-042000	
400	405	435	407-015-044000	407-375-044000
450	560	590	407-015-046000	
500	560	590	407-015-048000	407-375-048000

Accessories for
HF - Centrifugal fans
Type series HF R ...-15 / 17 D
repair switch | Connecting
diagram



Connecting diagram for standard three-phase motor

Motor cable		Switch Y (400 V)				Switch Δ (230 V)			
Cable no.	Winding	Pin	Motor cable no.	Mains		Pin	Motor cable no.	Mains	
1	U1	L1 →	-	(L1)	on-site connection	L1 →	-	(L1)	on-site connection
2	V1	L2 →	-	(L2)		L2 →	-	(L2)	
3	W1	L3 →	-	(L3)		L3 →	-	(L3)	
4	U2	T1 →	1 (U1)	-		T1 →	1 (U1) + 6 (W2)		
5	V2	T2 →	2 (V1)	-		T2 →	2 (V1) + 4 (U2)		
6	W2	T3 →	3 (W1)	-		T3 →	3 (W1) + 5 (V2)		
7	PTC	Y-jumper {							
8	PTC								

Connection diagram for motors with two speeds | separate winding

Motor cable		Connections at repair switch							
Cable no.	Winding	Switch pins				Motor cable no.			
1	U1	on-site connection 380 V 3-phase	←	L1	T1	→	1 (U1)	}	low speed
2	V1		←	L2	T2	→	2 (V1)		
3	W1		←	L3	T3	→	3 (W1)		
4	U2		←	2L1	2T1	→	4 (U2)	}	hight speed
5	V2		←	2L2	2T2	→	5 (V2)		
6	W2		←	2L3	2T3	→	6 (W2)		
7	PTC								
8	PTC								

Connection diagram for motors with two speeds | Dahlander pole changing motor

Motor cable		Connections at repair switch							
Cable no.	Winding	Switch pins				Motor cable no.			
1	U1	on-site connection 380 V 3-phase	←	L1	T1	→	1 (U1)	}	low speed
2	V1		←	L2	T2	→	2 (V1)		
3	W1		←	L3	T3	→	3 (W1)		
4	U2		←	2L1	2T1	→	4 (U2)	}	hight speed U1 - V1 - W1 must be star connected
5	V2		←	2L2	2T2	→	5 (V2)		
6	W2		←	2L3	2T3	→	6 (W2)		
7	PTC								
8	PTC								



Accessories for
HF - Centrifugal fans
Type series HF R ...-15 / 17 D
repair switch | Connecting
diagram

Connection diagram for EC motors with alternating current / single-phase motors

Motor cable	
black	phase
blue	neutral
yellow-green	equipotential bonding

Connections at repair switch					
Switch pins					Motorkabel
on-site connection 230 V single-phase	←	L1	T1	→	black
	←	L2	T2	→	blue (neutral)

1. Connection only by trained and qualified electrician.
2. Before installation, check motor and motor connecting cable for damage.
Replace defective cables by new cables, **don't repair them.**
3. Check, if the end crimps are firmly seated and replace them, if necessary.
4. Tighten the cable glands firmly, withdrawal of the cable must not be possible.
5. Connect the conductors to the repair switch according to the pin allocation table, **note the information given on the motor type label.**
6. The conductors must be put on correctly without squeezing or distortion in the repair switch.
7. The maximum cable length between potentiometer and EC motor is approximately 15 m.
8. Potential free status signaling contacts in the repair switch for on-site wiring on Wago connectors.

Constant controller of volume flow and pressure for HF - centrifugal fans with EC drive motor



Constant volume flow controller

Size - Type	KV
Ø	Article no.
125-15	441-071-000012
125-17	441-071-000013
140-15	441-071-000014
140-17	441-071-000015
160-15	441-071-000016
160-17	441-071-000017

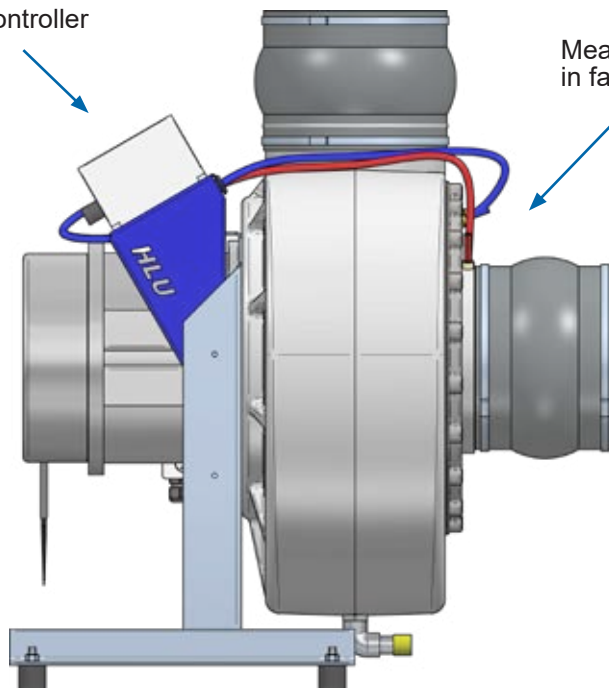
Size - Type	KV
Ø	Article no.
180-15	441-071-000018
180-17	441-071-000019
200-15	441-071-000020
200-17	441-071-000021
250-15	441-071-000022
250-17	441-071-000023

Constant pressure controller

Size	KD
Ø	Article no.
125	441-071-000113
140	441-071-000115
160	441-071-000117
180	441-071-000119
200	441-071-000121
250	441-071-000123

HLU - Controller

Measuring device integrated in fan inlet





Button assignment HLU - Controller

	Program key	Access to the configuration menu
	Hand key	Changing the setpoint manually
	Up and down keys	Display of information and dialogue screens
	Bell key	Mute the alarm
	ENTER key	Confirmation of settings

- "Stand alone" solution
- No higher-level control device required
- Automatic constant of volume flow or pressure
- Highly efficient due to the combination of state-of-the-art EC technology with sensor technology
- Only 2 x 230 V leads required
- Display showing setpoint and actual value for flow and pressure as well as the possible fan power
- Can be retrofitted; optional with measuring nozzle or by exchange of the housing cover
- Can also be used with frequency converters (performance limits to the fan/motor must be taken into consideration)
- Installation costs are significantly lower compared to systems with frequency converter
- Setpoints for volume flow and pressure can be set at the HLU - controller
- Automatic constant of volume flow with additional display of the pressure differential

ATEX 2014/34/EU



Protection grid


Shaft seal
Viton/Hastelloy

Standard
shaft seal

HLU fans according to ATEX 2014/34/EU

The ATEX Directive 2014/34/EU regulates the requirements with regard to placing products on the market that are used in potentially explosive atmospheres. The term ATEX is derived from the French abbreviation "Atmosphère explosible" and is used as a synonym for the two directives of the

European Community in the area of explosion protection, ATEX Directive 2014/34/EU and ATEX Directive 1999/92/EG. The design of fans in the ATEX area is described in detail in the norms DIN EN 14986 and DIN EN ISO 80079.

Explosion protection is differentiated according to the conveyed atmosphere (inside) and the surroundings of the installation site (outside).

HLU supplies fans for the ATEX Zones 2 and 1 for different zone combinations.

inside	outside
Zone 1	Zone 1
Zone 1	Zone 2
Zone 2	Zone 2
Zone 2	no Zone

HF - centrifugal fan in ATEX version – for Zone 2 inside / no Zone outside:

■ available with EC motor

Optional suction- and pressure-side protective grid to protect against contaminants

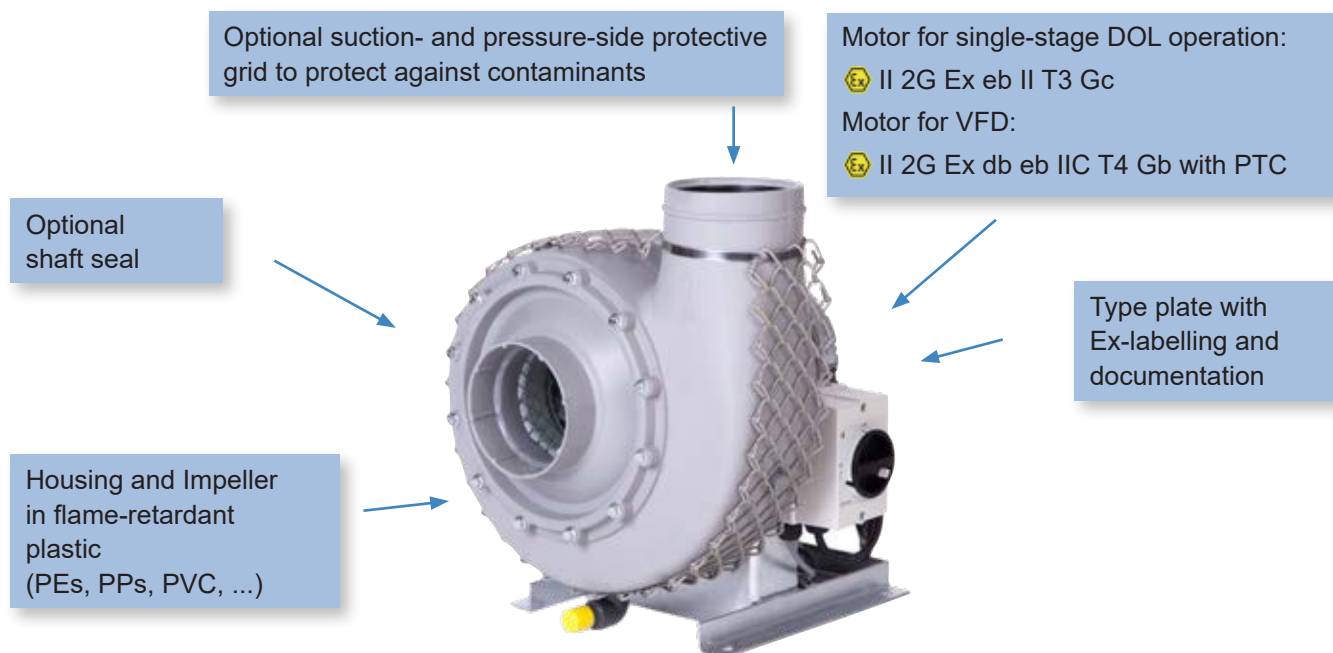
Shaft seal

Housing and Impeller in flame-retardant plastic (PEs, PPs, PVC, ...)

Type plate with Ex-labelling and documentation



HF -centrifugal fan in ATEX version – for Zone 2 inside / Zone 2 outside:



HF -centrifugal fan in ATEX version – for Zone 1 inside / Zone 2 outside: – for Zone 1 inside / Zone 1 outside:

HLU fans for ATEX Zone 1 are made of electrical conductive plastics (el).



Explosion protection ATEX

ATEX 2014/34/EU

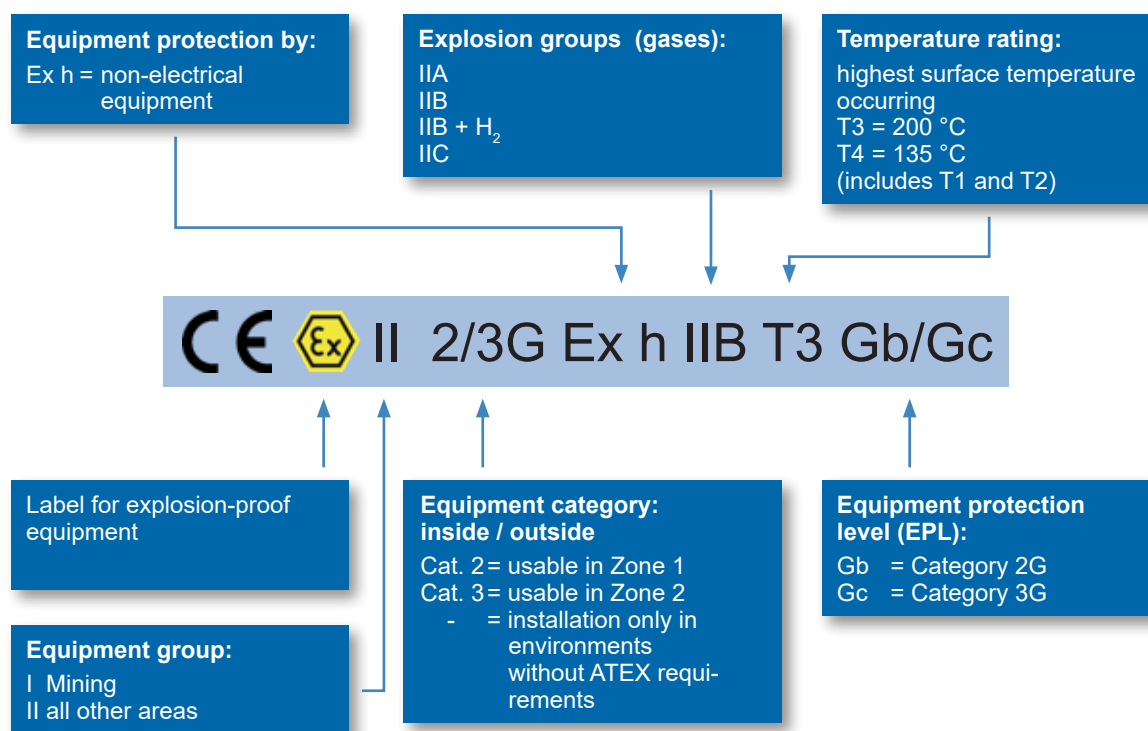


Protection grid


Shaft seal
Viton/Hastelloy

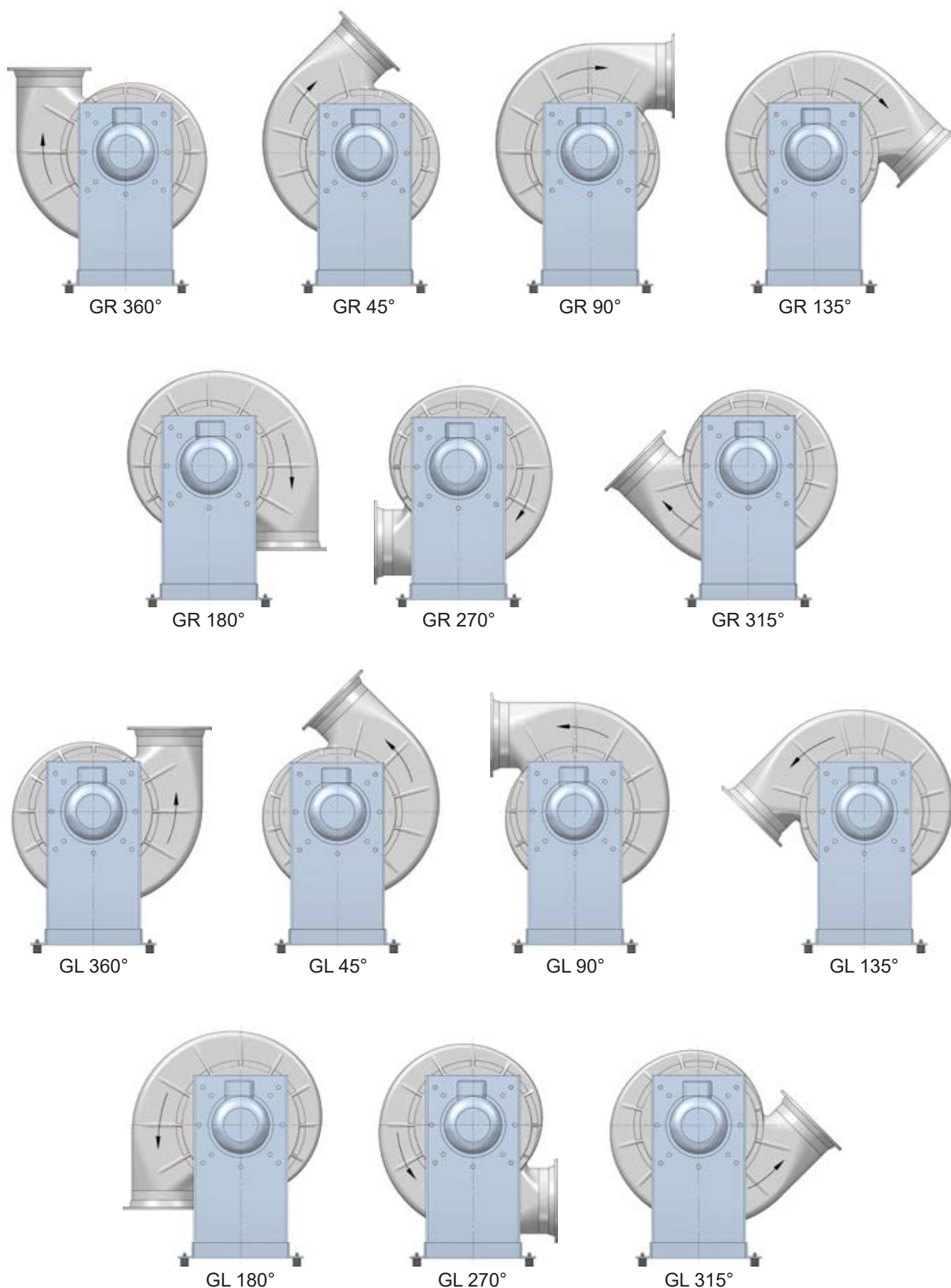
Standard
shaft seal

You will see on the fan's type plate a permanent identification of the explosion protection. The following illustration explains the labelling of equipment for potentially explosive atmospheres:



The operator of a facility is obligated to conduct a risk assessment. For questions regarding the Zone classification, you can contact various test centres such as for example safety engineers and special consultants. The following tables serve as reference:

An explosive gas atmosphere exists ...	ATEX Ex Zone	ATEX Device category	IEC EPL	(International) (Equipment Protection Level)
for more than 30 min. per year, however, less than 50% of the operational period daily	Zone 1	Category 2G		Gb
for a max. of 30 min. in a year	Zone 2	Category 3G		Gc



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