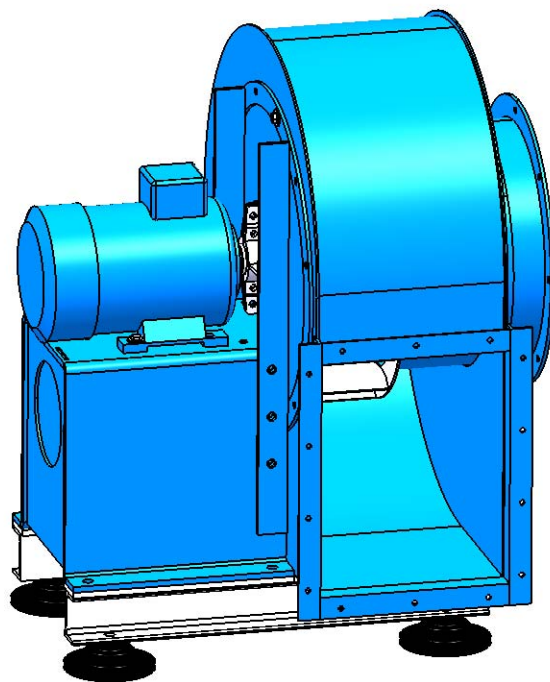


AIR TECH
SYSTEMS



Technical Documentation

Exhaust Centrifugal Fan

Series VSR-NM...SO

Technical brochure

Exhaust Centrifugal Fan Type VSR-NM...SO

Contents	Page
General informations, advantages	3
Accessories, technical data	4
Dimensions, elastic installation	5
Dimensions, elastic installation	6
Characteristics	7

Note

Dimensions in this technical documentation are given in mm. General tolerances according to DIN ISO 2768-vl apply.

Technical brochure

Exhaust Centrifugal Fan Type VSR-NM...SO

The LTG Exhaust Centrifugal Fan type VSR-NM is a one-side suction centrifugal fan with direct drive by a foot motor.

Application

The Exhaust Centrifugal Fan type VSR-NM is used to exhaust waste gases from industrial furnaces.

Operating Conditions

Conveying media temperature	up to 200°C
Flow rates	up to 17,000 m ³ /h
Total pressure rise	up to 550 Pa (5.5 mbar)

Specification and Design Characteristics

Welded U St 37-3 sheet steel housing.
Up to size 500 the housing is turnable, sizes 560 and 630 are not.

Suction socket and discharge socket are round up to model size 280, from size 315 suction socket with flange, discharge socket square with angular frame.

Impellers of welded U St 37-2 sheet steel with screwed hub of cast iron. Dynamically balanced according to DIN ISO 1940, grade 6.3, mounted directly onto the motor shaft. Special version of the impeller hub available with aluminum cooling disc including protection against accidental contact between the housing back panel and the motor.

Welded engine base with extended foot angles for elastic positioning.

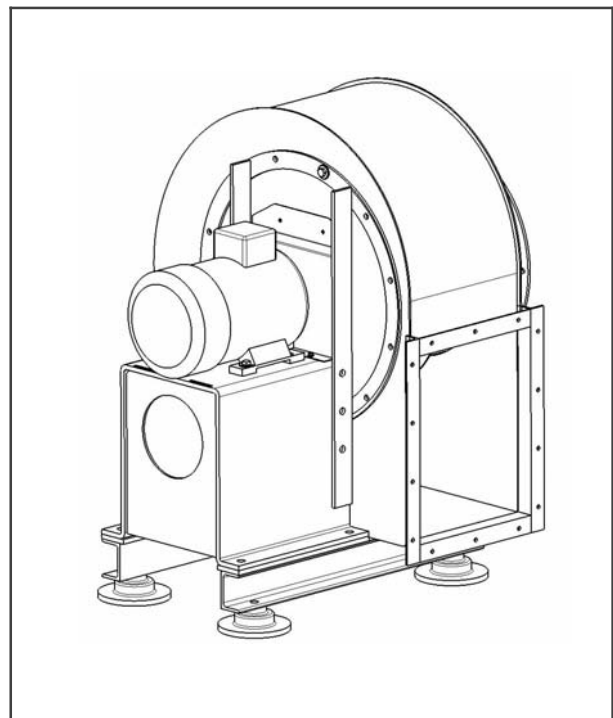
Surface finish:
Heat-resistant aluminum paint RAL 9006.

Motor

Alternative standard motors, IEC version, type IMB 3, up to 3 kW 230/400 V, from 4 kW 400/690 V, 50 Hz, IP55 protection, type of insulating material F (with PTC resistor sensor).

Advantages

- **Best aerodynamic properties**
- **Great running smoothness**
Impeller dynamically balanced together with hub and shaft
- **Low-noise operation**
- **Safe design**
Solid, torsion-stiff steel housing, welded, screwed, painted.
- **High-precision production**
ensures that specification requirements are always met.
- **Computer designed**
Based on the selection criteria, LTG fans are computer designed and dimensioned to meet any individual requirement. Thus, the fan suiting your application best will always be found.



Technical brochure

Exhaust Centrifugal Fan Type VSR-NM...SO

Accessories for elastic Installation

- 1 set = 4 pcs. rubber vibration dampers
- elastic socket for suction and discharge side

up to model size 280 smooth,
installation length 200 mm,
with tightening strap on both sides

from model size 315:
suction side round,
with diameter identical to nominal size,
U-shaped version, installation length 150 mm,
with backing flange on both sides.
Counter flange DN identical to nominal size.

discharge side square,
U-shaped version, installation length 150 mm,
with backing frame on both sides.
Counter frame

Size VSR-NM	Vibration damper weight [kg / set]	Compensator, on suction and discharge side, weight [kg / set]
160 SSO	2	1.6
200 (80) SO	2	1.8
224 (80) SO	2	2.1
280 SSO	2	2.6
315 SSO	2	3.0
355 (80) SO	2	3.4
400 (80) SO	2	3.8
400 SO	2	3.8
450 SSO	2	4.2
500 SSO	2	4.6
560 SO	2	5.2
630 (80) SO	3.6	6

Technical Data

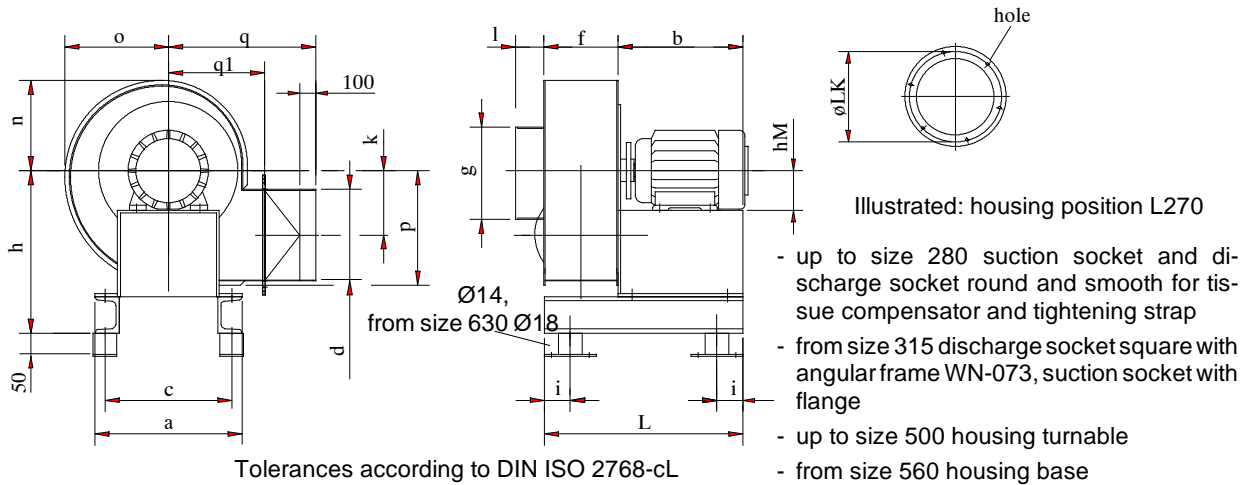
Size VSR-NM	Flow rate [m ³ /h]	Total pressure rise [mbar = hPa]		Motor output [kW]	Speed n [rpm]	Sound pressure level ¹⁾ [dB(A)]		Basic interference frequency [Hz]	Weight incl. motor [kg]
		at 200 °C	at 20 °C			with free discharge	with duct		
160 SSO	1200	2.9	5.4	0.55	2740	81	72	760	30
200 (80) SO	1800	3.5	5.7	0.55	2855	80	71	760	35
224 (80) SO	2500	4.4	7.1	1.1	2850	83	74	760	45
280 SSO	3500	2.9	4.7	0.75	1395	78	70	390	60
315 SSO	4000	3.5	5.7	1.1	1415	81	72	390	75
355 (80) SO	5000	2.8	4.5	1.1	1415	78	70	390	90
400 (80) SO	7500	3.5	5.7	2.2	1420	81	72	435	130
400 SO	7500	4.6	7.5	4	1420	83	74	435	130
450 SSO	9000	2.9	4.7	2.2	950	79	71	290	160
500 SSO	12000	3.6	5.9	4	950	83	74	290	210
560 SO	15000	4.0	6.5	4	965	81	72	290	240
630 (80) SO	18000	3.6	5.9	7.5	955	82	73	290	370

¹⁾ measured from a distance of 1 m according to DIN 45635 Part 38

Technical brochure

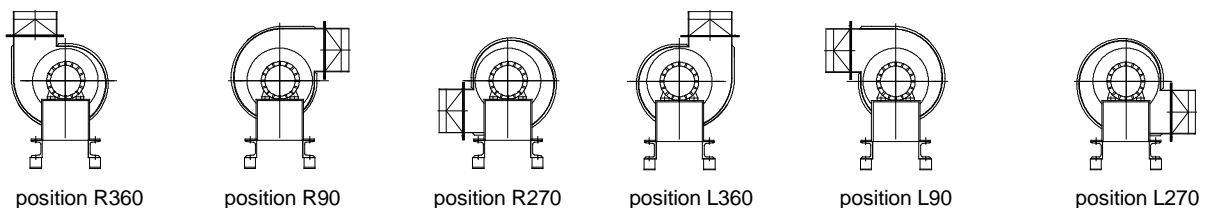
Exhaust Centrifugal Fan Type VSR-NM...SO, elastic Installation

Dimensions



Size VSR-NM	160 S	200 (80)	224 (80)	280 S	315 S	355 (80)	400 (80)	400	450 S	500 S	560	630 (80)
a	274	300	300	330	330	370	370	370	420	420	420	520
b	220	260	260	300	300	340	340	340	420	420	420	600
c	224	250	250	280	280	320	320	320	370	370	370	470
d	160	200	224	280	315	355	400	400	450	500	560	630
f	131	164	183	229	256	288	322	322	361	404	453	507
g	160	200	224	280	315	355	400	400	450	500	560	630
hM	71	80	80	80	90	90	100	112	112	132	132	160
h	290	345	355	380	455	488	553	565	612	632	700	800
k	115	142	158	198	225	241	258	258	296	319	359	399
l	50	60	60	80	80	80	80	80	80	80	100	100
m	139	168	190	230	250	274	302	302	342	372	415	460
n	161	196	220	270	298	326	358	358	402	442	495	550
o	183	224	250	310	346	378	414	414	467	512	575	640
p	205	252	280	350	394	430	470	470	532	582	655	730
q	260	300	340	400	-	-	-	-	-	-	-	-
q1	-	-	-	-	285	310	340	340	375	410	460	500
i	55	55	55	55	55	55	55	55	55	55	55	75
L	350	425	450	530	555	630	665	665	780	825	925	1172
LK	194	235	259	322	356	395	438	438	487	541	605	674
Hole Ø	7	7	9.5	9.5	9.5	9.5	9.5	9.5	11.5	11.5	11.5	11.5
No. of holes	6	6	6	8	8	8	12	12	12	12	16	16

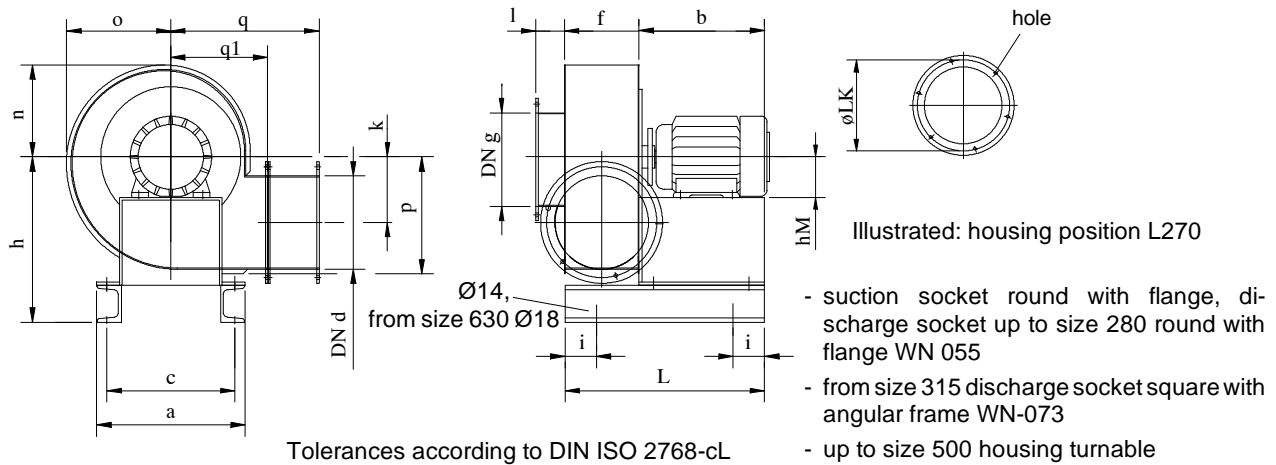
Housing positions (view onto engine base)



Technical brochure

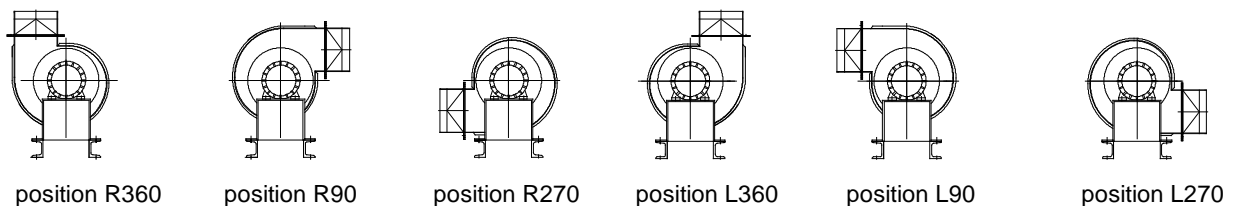
Exhaust Centrifugal Fan Type VSR-NM...SO, rigid Installation

Dimensions



Size VSR-NM	160 S	200 (80)	224 (80)	280 S	315 S	355 (80)	400 (80)	400	450 S	500 S	560	630 (80)
a	260	300	300	330	330	370	370	370	420	420	420	520
b	220	260	260	300	300	340	340	340	420	420	420	600
c	224	250	250	280	280	320	320	320	370	370	370	470
DN d	160	200	224	280	315	355	400	400	450	500	560	630
f	131	164	183	229	256	288	322	322	361	404	453	507
DN g	160	200	224	280	315	355	400	400	450	500	560	630
hM	71	80	80	80	90	90	100	112	112	132	132	160
h	290	345	355	380	455	488	553	565	612	632	700	800
k	115	142	158	198	225	241	258	258	296	319	359	399
l	50	60	60	80	80	80	80	80	80	80	100	100
m	139	168	190	230	250	274	302	302	342	372	415	460
n	161	196	220	270	298	326	358	358	402	442	495	550
o	183	224	250	310	346	378	414	414	467	512	575	640
p	205	252	280	350	394	430	470	470	532	582	655	730
q	260	300	340	400	-	-	-	-	-	-	-	-
q1	-	-	-	-	285	310	340	340	375	410	460	500
i	55	55	55	55	55	55	55	55	55	55	55	75
L	350	425	450	530	555	630	665	665	780	825	925	1172
LK	194	235	259	322	356	395	438	438	487	541	605	674
Hole Ø	7	7	9.5	9.5	9.5	9.5	9.5	9.5	11.5	11.5	11.5	11.5
No. of holes	6	6	6	8	8	8	12	12	12	12	16	16

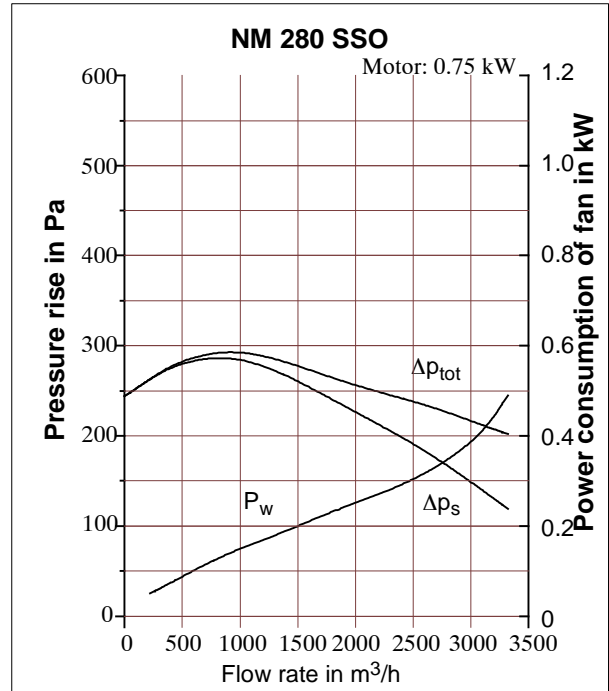
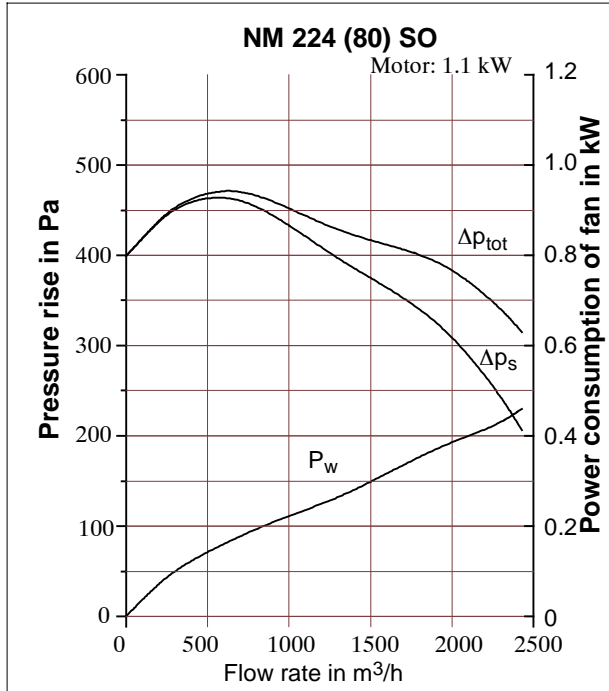
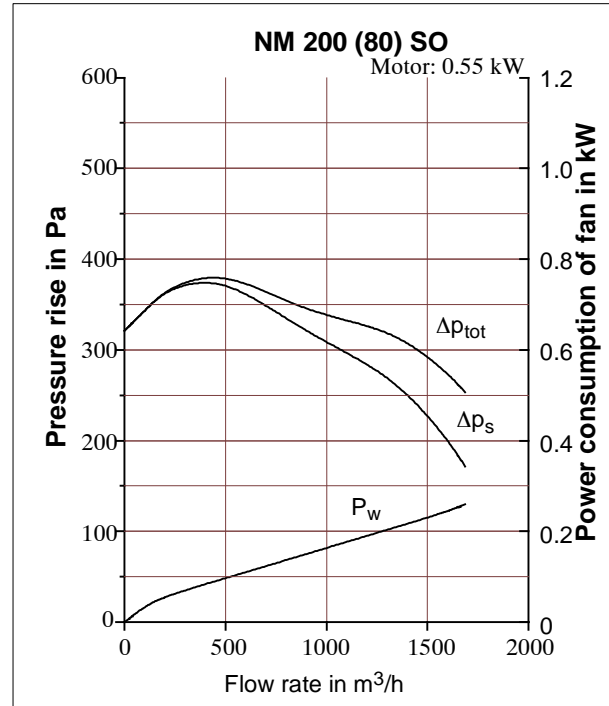
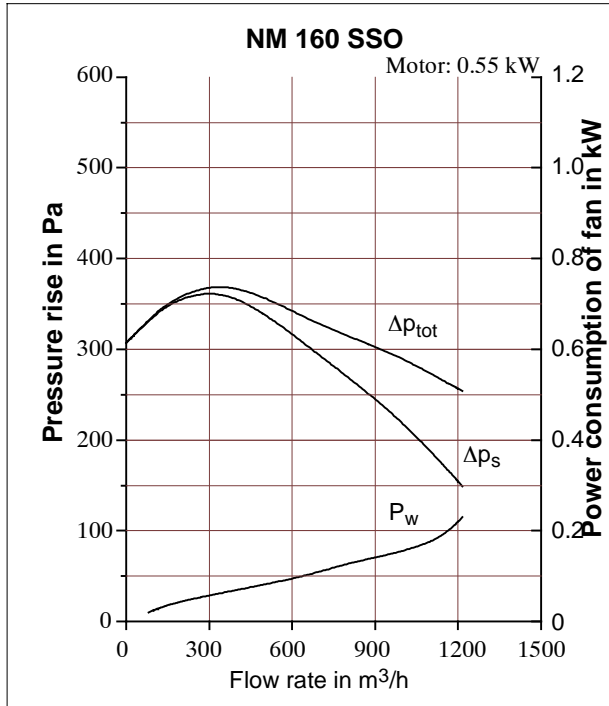
Housing positions (view onto engine base)



Technical brochure

Exhaust Centrifugal Fan Type VSR-NM...SO

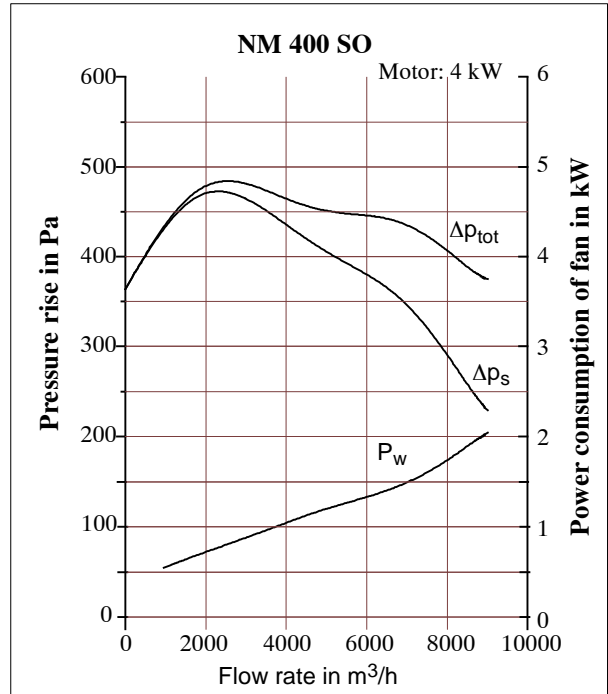
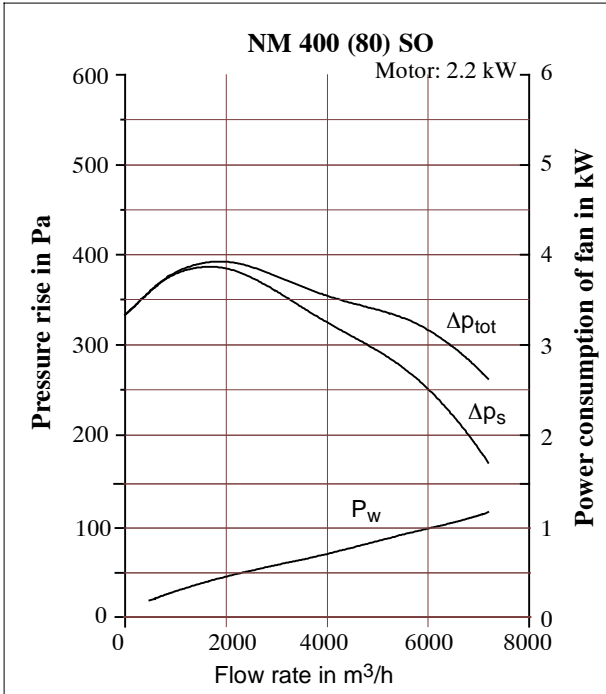
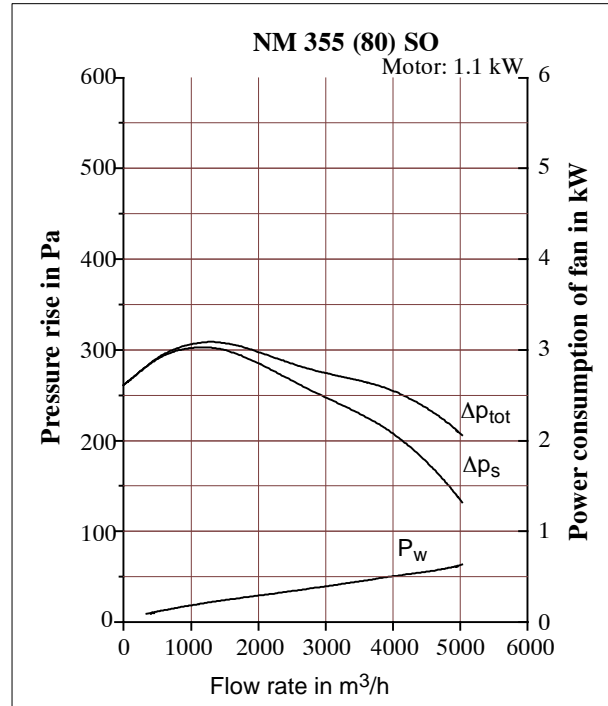
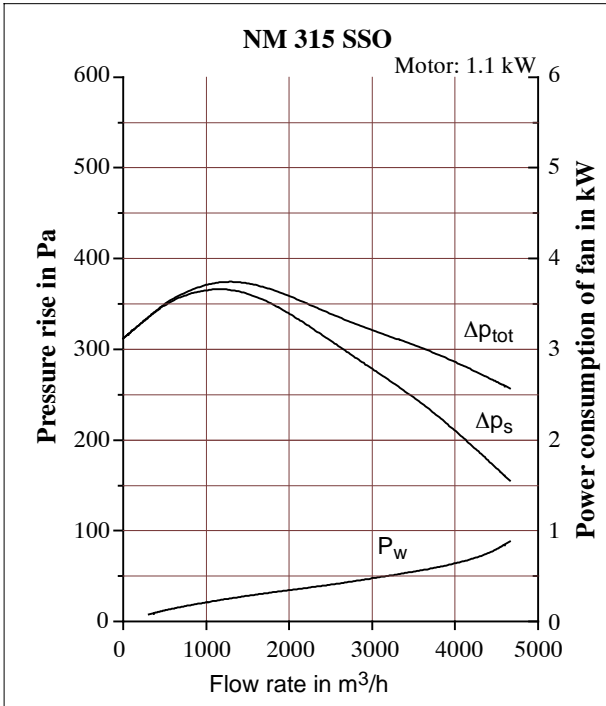
Characteristics (at 200 °C, $\rho = 0.74 \text{ kg/m}^3$)



Technical brochure

Exhaust Centrifugal Fan Type VSR-NM...SO

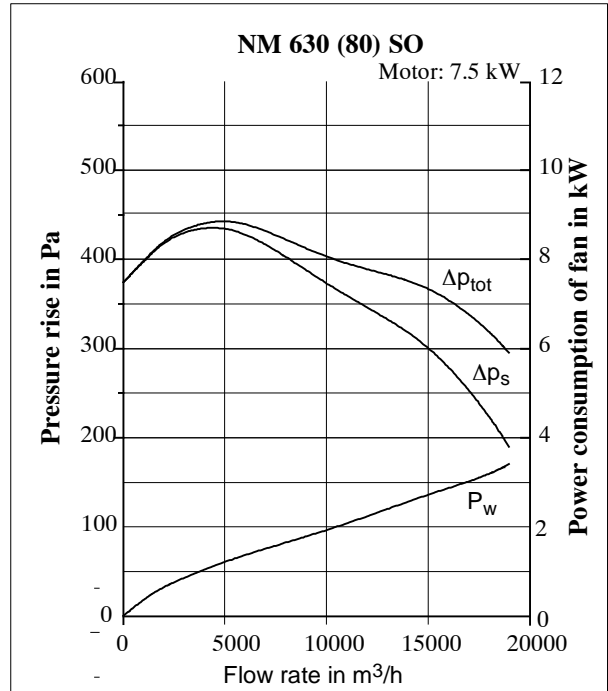
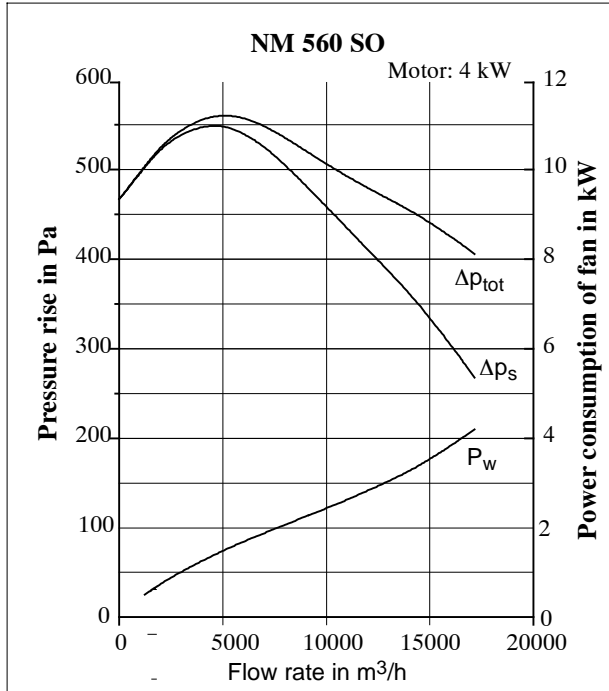
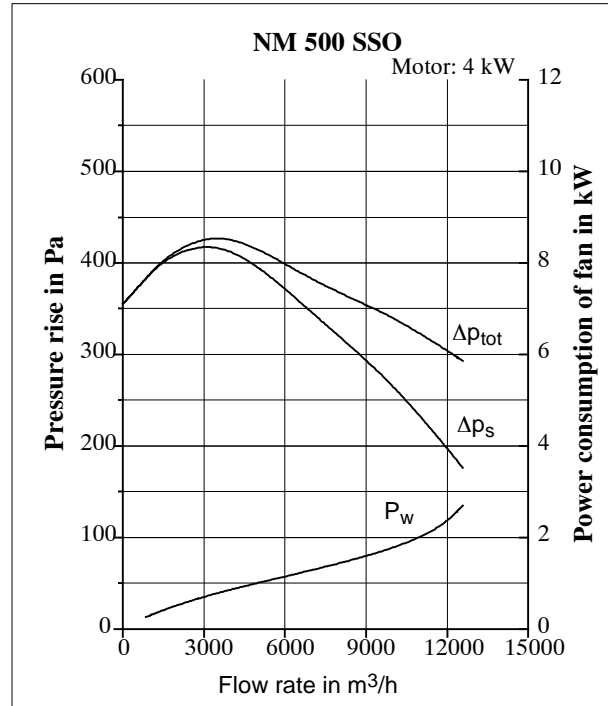
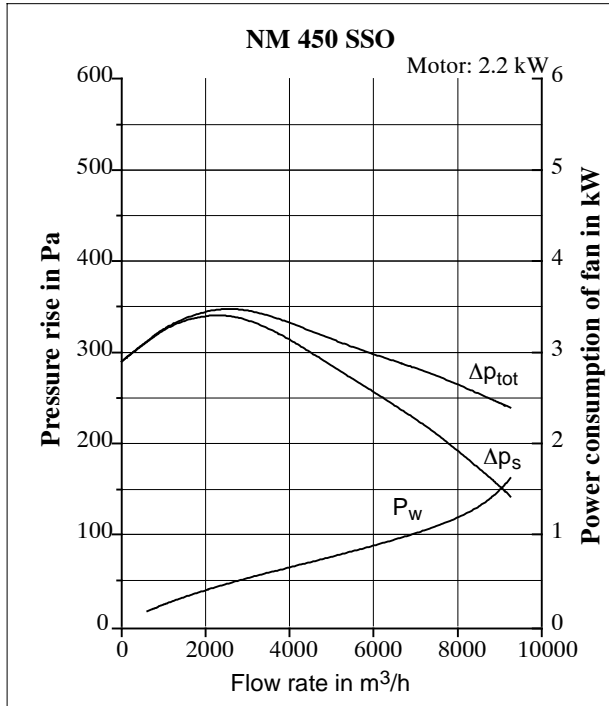
Characteristics (at 200 °C, $\rho = 0.74 \text{ kg/m}^3$)



Technical brochure

Exhaust Centrifugal Fan Type VSR-NM...SO

Characteristics (at 200 °C, $\rho = 0.74 \text{ kg/m}^3$)





Comfort Air Technology

Air Conditioning Systems

- Decentralized Facade Ventilation Units
- Fan Coil Units
- Induction Units,
Active Chilled Beams

Air Diffusers

- Linear Air Diffusers
- Wall and Floor Mounted Air Diffusers
- Swirl Diffusers
- Industrial and Special Air Diffusers

Air Distribution

- Flow Rate and Pressure Controllers
- Shut-off and Balancing Dampers
- Silencers

Process Air Technology

Fans

- Tangential Fans
- Axial Fans
- Centrifugal Fans
- Fahrtwind-Simulators

Filtration Technology

- Suction Nozzles
- Dampers
- Filters, Dust Collectors
- Separators, Compactors

Humidification Technology

- Air Humidifiers
- Product Humidifiers

Engineering Services

Fluid Engineering

- Flow analysis
- Flow visualization
- CFD-simulations
- Flow optimization
- Air conditioning concepts

Thermodynamics

- Calorimetric performance measurement
- Thermal, dynamic, unsteady,
system simulations

Acoustics

- Sound level measuring
- Vibration analysis
- Echo chamber measurement
- Acoustic optimization

Comfort

- Evaluation
- Optimization

Customer-specific Solutions

- Product development
- Process optimization
- Installation analysis

LTG Aktiengesellschaft

Grenzstraße 7
70435 Stuttgart
Germany
Tel.: +49 (711) 8201-0
Fax: +49 (711) 8201-696
E-Mail: info@LTG.net
www.LTG.net

LTG Incorporated

105 Corporate Drive, Suite E
Spartanburg, SC 29303
USA
Tel.: +1 (864) 599-6340
Fax: +1 (864) 599-6344
E-Mail: info@LTG-INC.net
www.LTG-INC.net