Product description

INM 80-160

Customer	Supplier
Company name	
Editor	
Phone number	
E-mail	

Fields of Application

The in-line pumps are designed for:

Water supply and boosting,
Watering, sprinkling and dewatering,
Fiiling and discharging of tanks,
Circulating of hot and cold water,
In central heating and air-conditioning installations,
Circulating in swimming pools,
Liquid transfer applications in industry, agriculture, etc.
Pumping of clean and sea water in ships.

Design Specification

The INM pumps are single-stage centrifugal pumps of non-self-priming type fitted with standard motors and mechanical shaft seals.

The nominal flow rates of the pumps comply with the DIN 24 255 standards.

Pump flanges sizes according to EN 1092, PN 16. The dimensions of the suction and discharge ports are identical. Both pump flanges have pressure gage tapings.

Single entry, closed impeller is hydraulically thrust compensated and dynamically balanced.

A drain plug is fitted in the bottom of pump housing.

The motor shaft is passed into the pump shaft for coupling and no need to use any coupling for the system.

Bearings

For INM series pumps, the motor shaft and pump shaft are passed into each other. The axial and the radial loads are carried by the bearing inside the motor. There is no need to use extra bearing for the pump. For high powers, a coupling system is used between the motor shaft and pump shaft.

Technical Data

Suction Flange	: DN 40 - DN 200
Discharge Flange	: DN 40 - DN 200
Operating Pressure	: 10 bar
Operating Temperature	: -25 – 120 °C
Flow Range	: 2 – 520 m³/h
Head Range	: 2 - 105 m
Speed Range	: 900-3600 rpm

Technical data

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Operating data specification

Pumped fluid	Water		Rated flow	47	m³/h
Solids			Rated head	10	m
Kind			Geodetic head	0	m
Percentage of solid content	0		Available system NPSH		m
pH value			Inlet pressure (pin)	0	kPa
Temperature	20	°C	Altitude above sea level	100	m
Density	998.3	kg/m³	Max. operating pressure	105	kPa
Kin. viscosity	1.005	mm²/s	Max. diff. pressure	105	kPa
Vapour pressure	2.34	kPa			

Pump

Make	MAS DAF		Impeller type		
Pump type	INM 80-160		Impeller construction		
Frame size			Impeller Ø		
Design			Max.	174	mm
Self priming	☒ No		designed	174	mm
Speed	1450	rpm	Min.	124	mm
Stages	1		Flow		
Suction port			Nominal	45.8	m³/h
Pressure rating	PN16		Max.	66.5	m³/h
Nominal pipe size	DN80		Min.	0	m³/h
Standard	DIN		Head		
Discharge port			Nominal	9.64	m
Pressure rating	PN16		Min.	6.98	m
Nominal pipe size	DN80		Max.	10.7	m
Standard	DIN		Shut off head	10.7	m
Shaft power	1.6	kW	NPSH3	0.928	m
Shaft power P2(Q=max.)	1.96	kW	Efficiency	75.3	%

Motor

Make/Type	2.2 KW-1500 RPM / 90L-C		Make/Type		
Specific design	IE3 / 50 Hz / Pole pairs 2		Series		
Rated power	2.2	kW	Spacer length		mm
Electric voltage	3~ 400	V	Frame size		
Speed	1435	rpm			
Electric current	5	A			
Frame size	100L				
Degree of protection	IP 55				
Type of protection					
Explosion protection					

Materials

Pump		Shaft seal	AQ1EGG
Pump Casing	GJL-250 (GG25)	Material code	AQ1EGG
Impeller	GJL-250 (GG25)	Seal face	Carbon graphite antimony impregnated (A)
Shaft	A 276 Type 420 (X20Cr13)	Seat	Silicon carbide (Q1, eSiC-Q7)
		Elastomer	EPDM (E)
		Metal parts	CrNiMo steel (G)

Performance curves

INM 80-160

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Power data referred to: Water; 20°C; 998.3kg/m³; 1.005mm²/s

Sense of rotation: Clockwise from the drive end

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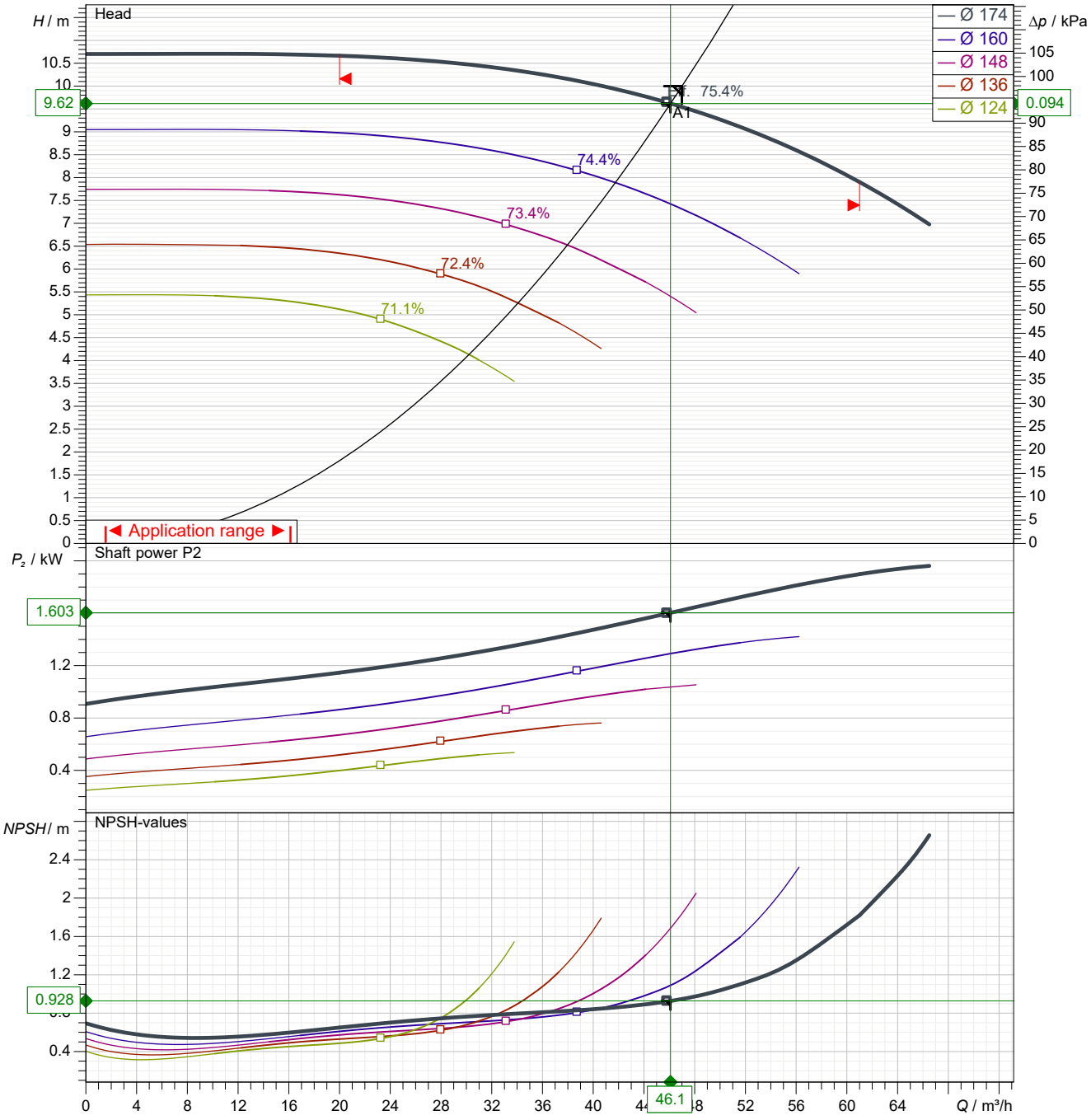

Pump curves in accordance with ISO 9906 2B

Pumped fluid	Water		Rated flow	47	m³/h
Temperature	20	°C	Rated head	10	m
Density	998.3	kg/m³	Shaft power	1.6	kW
Kin. viscosity	1.005	mm²/s	Speed	1450	rpm
Vapour pressure	2.34	kPa	NPSH3	0.928	m
Impeller Ø	174	mm	Efficiency	75.3	%

Brief description of pump

INM 80-160

Customer

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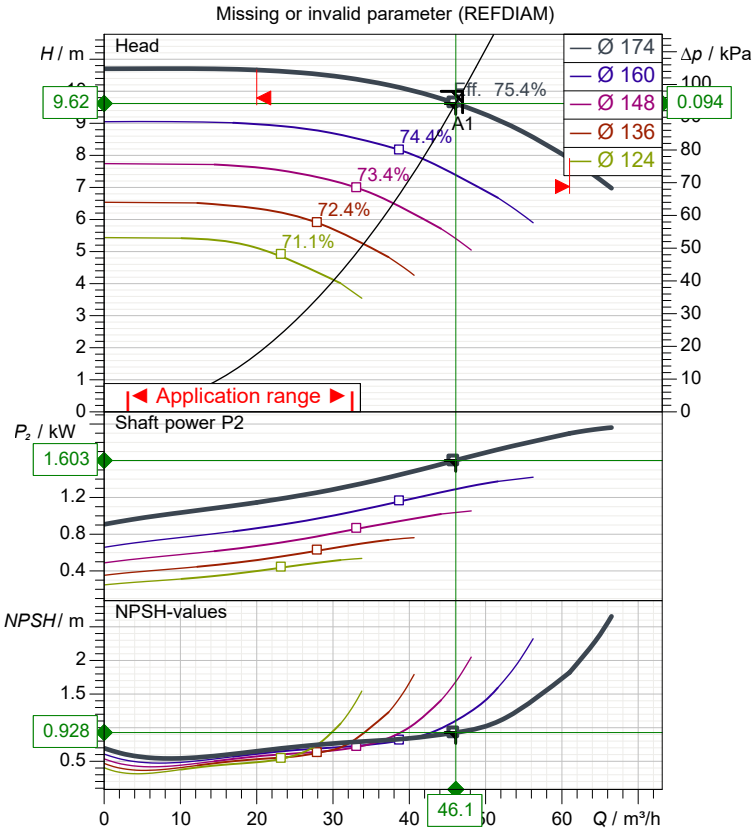
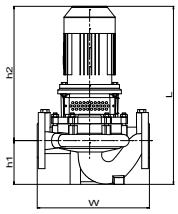
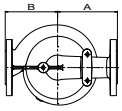
Supplier

Performance curves



Pump curves in accordance with ISO 9906 2B





Dimensions	mm
A	220
B	220
h1	135
h2	506
L	641
w	440

Pump

Make	MAS DAF
Pump type	INM 80-160
Design	
Suction port	
Pressure rating	PN16
Nominal pipe size	DN80
Standard	DIN
Discharge port	
Pressure rating	PN16
Nominal pipe size	DN80
Standard	DIN

Operating data specification

Pumped fluid	Water	
Temperature	20	°C
Density	998.3	kg/m³
Kin. viscosity	1.005	mm²/s
Vapour pressure	2.34	kPa
Rated flow	47	m³/h
Rated head	10	m
Shaft power	1.6	kW
Speed	1450	rpm
NPSH3	0.928	m
Efficiency	75.3	%
Impeller Ø	174	mm

Motor

Make/Type	2.2 KW-1500 RPM / 90L-C	
Specific design	IE3 / 50 Hz / Pole pairs 2	
Rated power	2.2	kW
Speed	1435	rpm
Electric voltage	3~ 400	V
Electric current	5	A
Degree of protection	IP 55	

Materials

Shaft seal	AQ1EGG
Material code	AQ1EGG
Seal face	Carbon graphite antimony impregnated (A)
Seat	Silicon carbide (Q1, eSiC-Q7)
Elastomer	EPDM (E)
Metal parts	CrNiMo steel (G)
Pump Casing	GJL-250 (GG25)
Impeller	GJL-250 (GG25)
Shaft	A 276 Type 420 (X20Cr13)

Pump dimensions

INM 80-160

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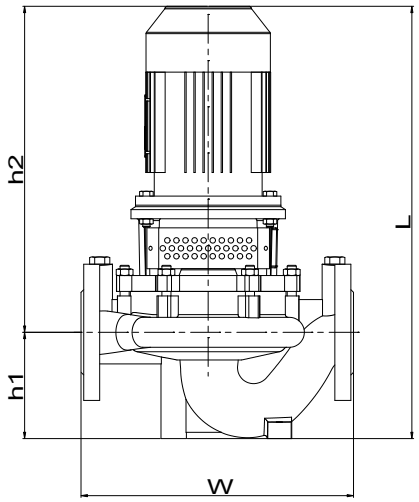

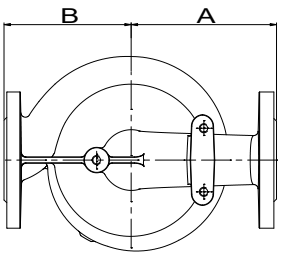

Dimensions	mm
A	220
B	220
h1	135
h2	506
L	641
w	440

Inlet / outlet	
Suction port	Discharge port
DN80	DN80
PN16	PN16

Motor performance curve

2.2 KW-1500 RPM / 90L-C

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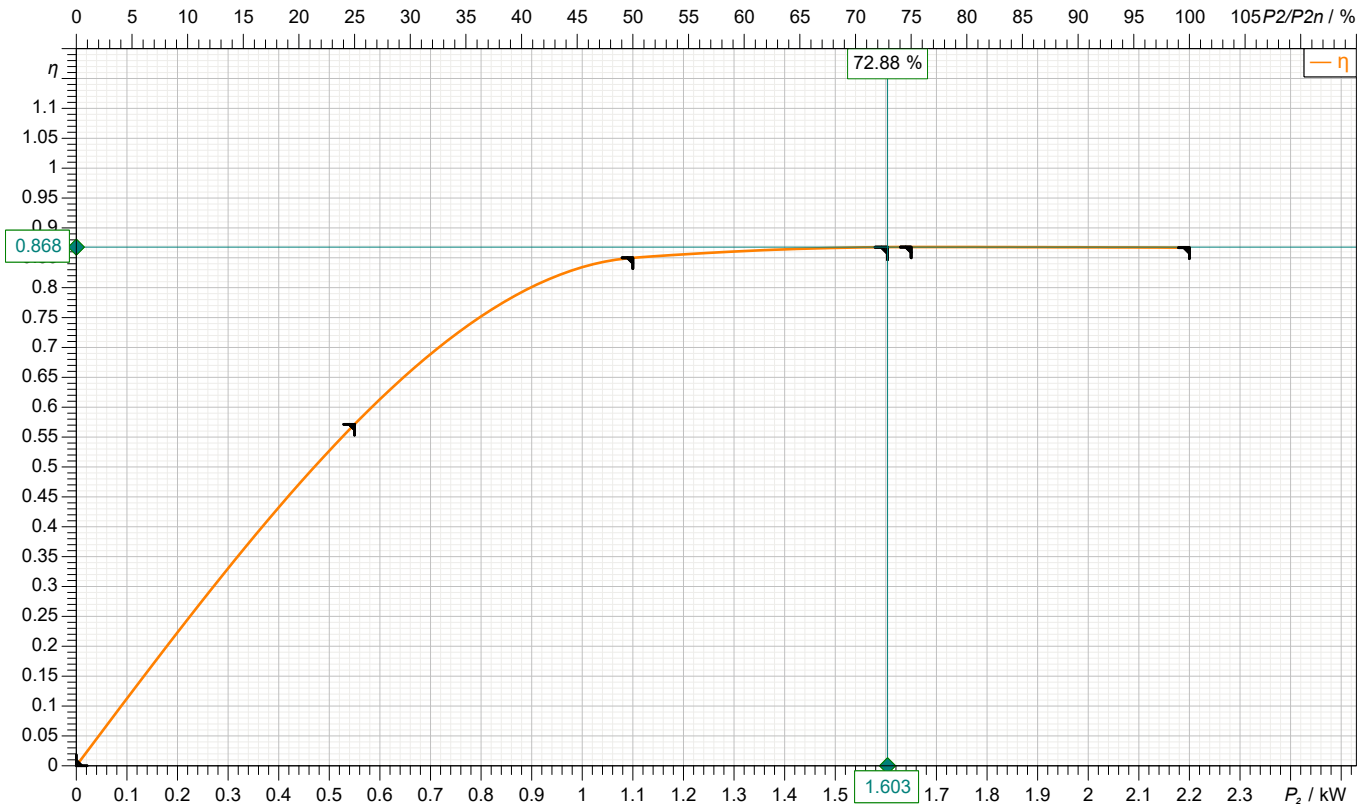
motor data



Symbol	No load	25 %	50 %	75 %	100 %	125 %
P_2 / kW	0	0.55	1.1	1.65	2.2	
P_1 / kW		0.9624	1.294	1.901	2.537	
η / %	0	57.14	85	86.8	86.7	

Motor

Make/Type	2.2 KW-1500 RPM / 90L-C		Degree of protection	IP 55	
Specific design	IE3 / 50 Hz / Pole pairs 2		Type of protection		
Rated power	2.2	kW	Explosion protection		
Electric voltage	3~ 400	V	Service factor	1.15	
Number of poles	4		Starting current		
Speed	1435	rpm	Starting torque		
Electric current	5	A	Moment of inertia		
Power factor	0.73		No. starts per hour		
Frame size	100L		Rated torque	14.6 Nm	
Efficiency class	IE3		Insulation class	F (155C°)	

Motor dimensions

2.2 KW-1500 RPM / 90L-C

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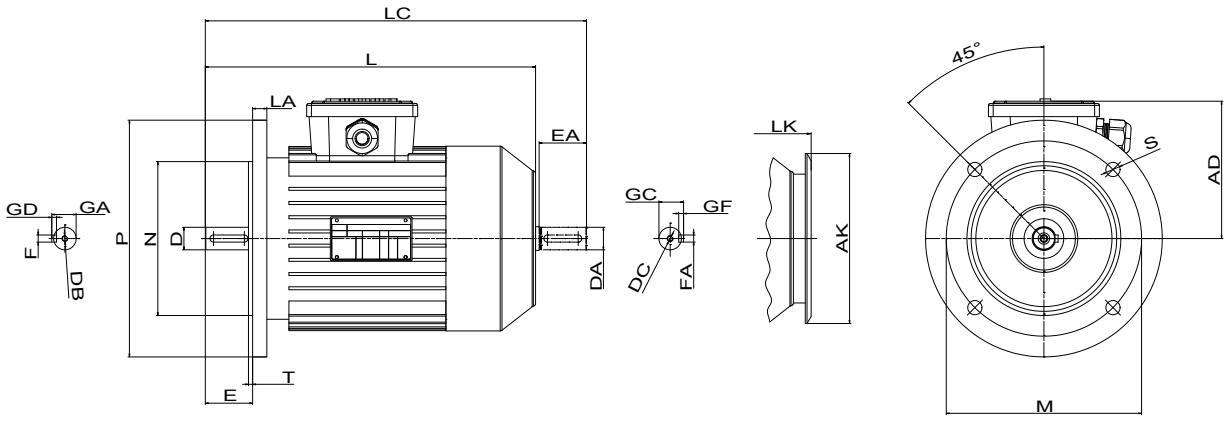

Dimensions	mm		
AD	135	LK	443
AK	189	M	215
D	28	N	180
DA	28	NO	4
DB	M10	P	250
DC	M10	S	14.5
E	60	T	4
EA	60		
FAxGF	8X7		
FxGD	8X7		
GA	31		
GC	31		
L	406		
LA	15		
LC	472		

Flange connections

INM 80-160

Customer

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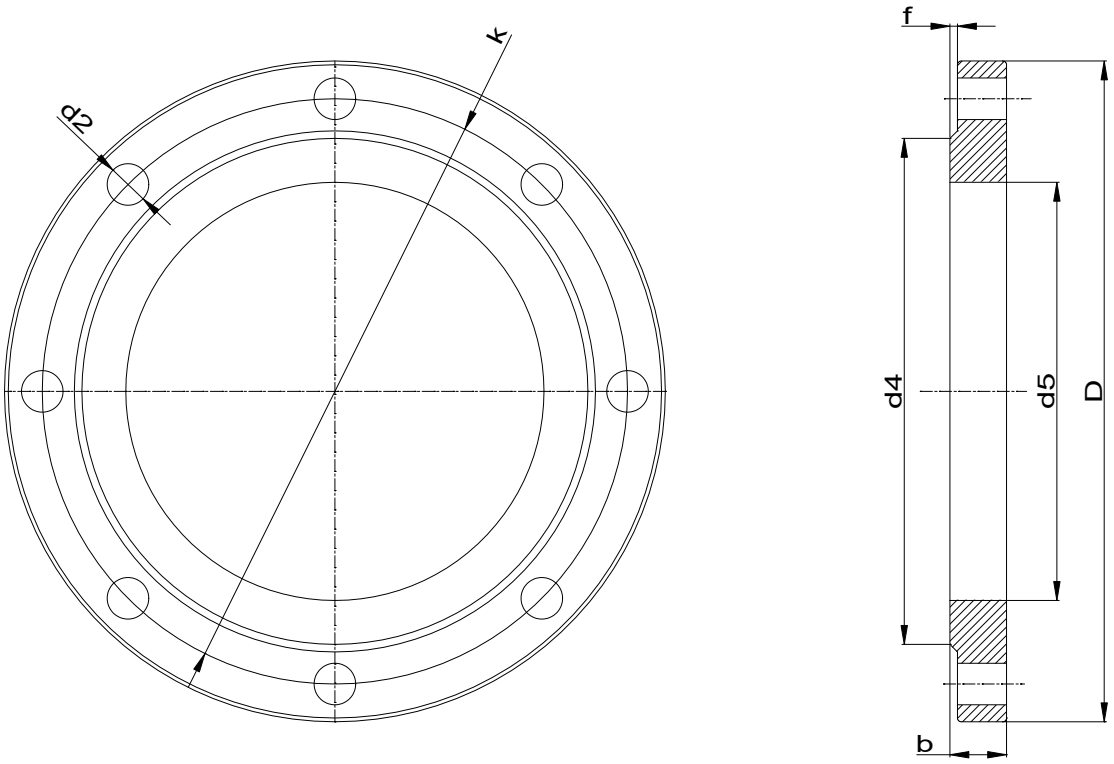
Supplier



Suction connection
DN80
PN16

Dimensions	mm
b	20
D	200
d2	18
d4	160
d5	90.5
DN	80
f	2
k	160
n	8

Discharge connection
DN80
PN16

Dimensions	mm
b	20
D	200
d2	18
d4	160
d5	90.5
DN	80
f	2
k	160
n	8

Spare part list

INM 80-160

Customer	Supplier
Company name	
Editor	
Phone number	
E-mail	

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