

Air pumps

**Built-in air pumps
assure a long operating time**



Air pumps

Single and twin head types are available for the APN series.
Selectable thread or hose joint further widen an application range.
The BA series are capable of sending corrosive-/heated-gas.



Most appropriate for built-in applications

Diaphragm air pumps



The APN series, diaphragm air pumps, are compact and have motor-driven diaphragms. A highly-efficient motor and a special diaphragm, an enlarged bearing and an enhanced connecting rod have greatly improved vacuum performance, a starting characteristic and durability. The APN can fit to various applications, including gas sampling and medical equipment.

Clean air transfer

The motor-driven diaphragm pumps are oil-/carbon-free and are highly air-tight. Most suitable in medical or sampling equipment where air cleanness is required.

Highly-efficient design

A use of moulded parts enhances the pump performance and efficiency. The high-power motor also improves the starting characteristic.

Long life design

Fiber reinforced diaphragms, enlarged bearings and enhanced con rods have further improved reliability and durability in order for the pump to run over an extended time period in a continuous operation.

Easy maintenance

The pump head consists of only a few parts and can easily be dismantled and assembled.

Wide variations

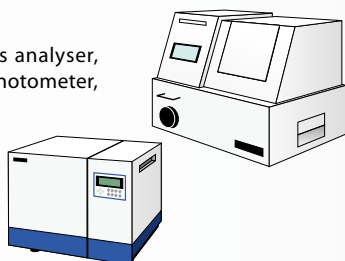
Either single- or twin-head type is selectable. Also, EPDM, FKM, NBR or PTFE diaphragm and hose/thread connections are available. A number of combinations (more than 60) varies the APN according to an intended use.

NOTE: A diaphragm material and a suction bore shape differs with models.

Applications

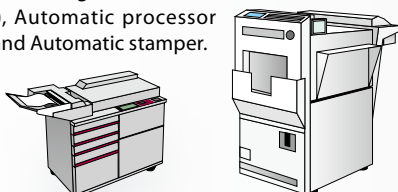
Analysers

Deaerator, Air analyser, Flue-gas analyser, Biochemical analyser, Spectral photometer, Leak tester and Dust counter.



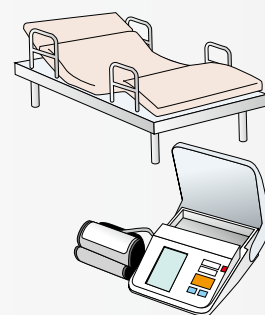
Printing and Automatic processing

Copy machine (paper transfer), Printing machine (film adsorption/ paper transfer), Automatic processor (blower), Printer, Air bearing and Automatic stamper.



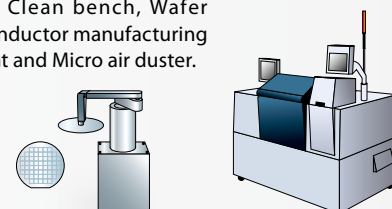
Medical equipment

Aspirator, Nebulizer, Low-frequency therapy equipment, Blood-pressure gauge, Endoscope, X-ray film adsorption/ transfer, Gas sterilizer, Tapper, Artificial respirator, Bedsore preventive mat, Interferential current therapy equipment, Oxygen generator and Normal saline solution spray.



Electronics

PCB adsorption/transfer, Clean bench, Wafer adsorption/transfer, Semiconductor manufacturing equipment, Laser equipment and Micro air duster.

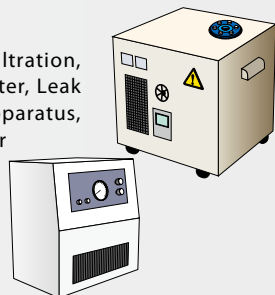


Either single or twin pump head type is selectable.
Thread and hose connections allow the pump to fit into various applications.

Max. Vacuum kPa				Max. discharge pressure MPa				Model	Pump head	Max. capacity L/min (50Hz)					
26.66	53.32	79.98	101.31	0	0.05	0.1	0.15	0.2		0	2.5	5	7.5	10	
[Bar chart: 79.98-101.31]				[Bar chart: 0-0.05]				APN-051L/H	Single	[Bar chart: 0-1]					
[Bar chart: 79.98-101.31]				[Bar chart: 0-0.05]				APN-P051L/H	Parallel	[Bar chart: 0-1]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.05]				APN-S051L	Series	[Bar chart: 0-1]					
[Bar chart: 79.98-101.31]				[Bar chart: 0-0.05]				APN-052L/H	Single	[Bar chart: 0-2]					
[Bar chart: 79.98-101.31]				[Bar chart: 0-0.05]				APN-P052L/H	Parallel	[Bar chart: 0-4]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.05]				APN-S052L/H	Series	[Bar chart: 0-3]					
[Bar chart: 79.98-101.31]				[Bar chart: 0-0.05]				APN-052L/H-D	Single	[Bar chart: 0-2]					
[Bar chart: 79.98-101.31]				[Bar chart: 0-0.1]				APN-085	Single	[Bar chart: 0-5]					
[Bar chart: 53.32-101.31]				[Bar chart: 0-0.1]				APN-085L/H	Single	[Bar chart: 0-5]					
[Bar chart: 53.32-101.31]				[Bar chart: 0-0.1]				APN-085L/H-D3	Single	[Bar chart: 0-6]					
[Bar chart: 53.32-101.31]				[Bar chart: 0-0.1]				APN-P085L/H	Parallel	[Bar chart: 0-10]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-S085L/H	Series	[Bar chart: 0-5]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-110K/L	Single	[Bar chart: 0-1]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.05]				APN-110K/L-D3	Single	[Bar chart: 0-1]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-P110K/L	Parallel	[Bar chart: 0-2]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-S110L	Series	[Bar chart: 0-1]					
[Bar chart: 53.32-101.31]				[Bar chart: 0-0.1]				APN-215N	Single	[Bar chart: 0-1]					
[Bar chart: 53.32-101.31]				[Bar chart: 0-0.1]				APN-215C	Single	[Bar chart: 0-1]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-215M	Single	[Bar chart: 0-1]					
[Bar chart: 53.32-101.31]				[Bar chart: 0-0.1]				APN-P215N	Parallel	[Bar chart: 0-2]					
[Bar chart: 53.32-101.31]				[Bar chart: 0-0.1]				APN-P215C	Parallel	[Bar chart: 0-2]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-P215M	Parallel	[Bar chart: 0-2]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-S215M	Series	[Bar chart: 0-1]					
[Bar chart: 53.32-101.31]				[Bar chart: 0-0.2]				APN-240N	Single	[Bar chart: 0-3]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.2]				APN-240M	Single	[Bar chart: 0-3]					
[Bar chart: 53.32-101.31]				[Bar chart: 0-0.2]				APN-P240N	Parallel	[Bar chart: 0-6]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.2]				APN-P240M	Parallel	[Bar chart: 0-7]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.2]				APN-S240M	Series	[Bar chart: 0-3]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-450N	Single	[Bar chart: 0-5]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-P450N	Parallel	[Bar chart: 0-10]					
[Bar chart: 26.66-101.31]				[Bar chart: 0-0.1]				APN-S450N	Series	[Bar chart: 0-5]					

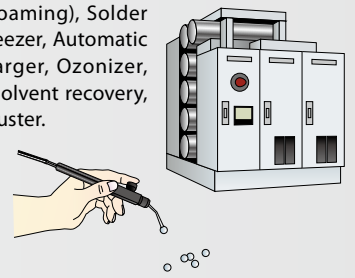
Physics and chemistry

Vacuum furnace, Aspirator, Vacuum filtration, Liquid chromatography, Particle counter, Leak tester, Spray, Turbidimeter, Culture apparatus, Aseptic bath, Micro air duster and Agitator



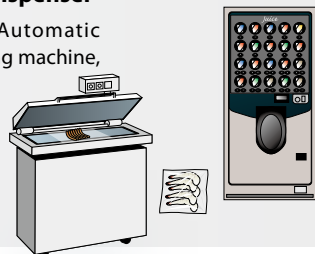
Industrial machine

Forming machine (vacuum defoaming), Solder adsorption, Washer, Vacuum tweezer, Automatic packaging, Automobile oil charger, Ozonizer, Vacuum chuck, Glass engraver, Solvent recovery, Lifter, Air tool, Air brush and air duster.



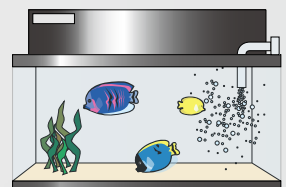
Food industry and Automatic dispenser

Food pack (vacuum packaging), Automatic dispenser, Thawing machine, Labelling machine, Bubbling machine and Deaerator



Aquarium fish and Live fish

Blower, Ozonizer, Air lift and Underwater camera



Pump variations

Single head type



Twin parallel heads type

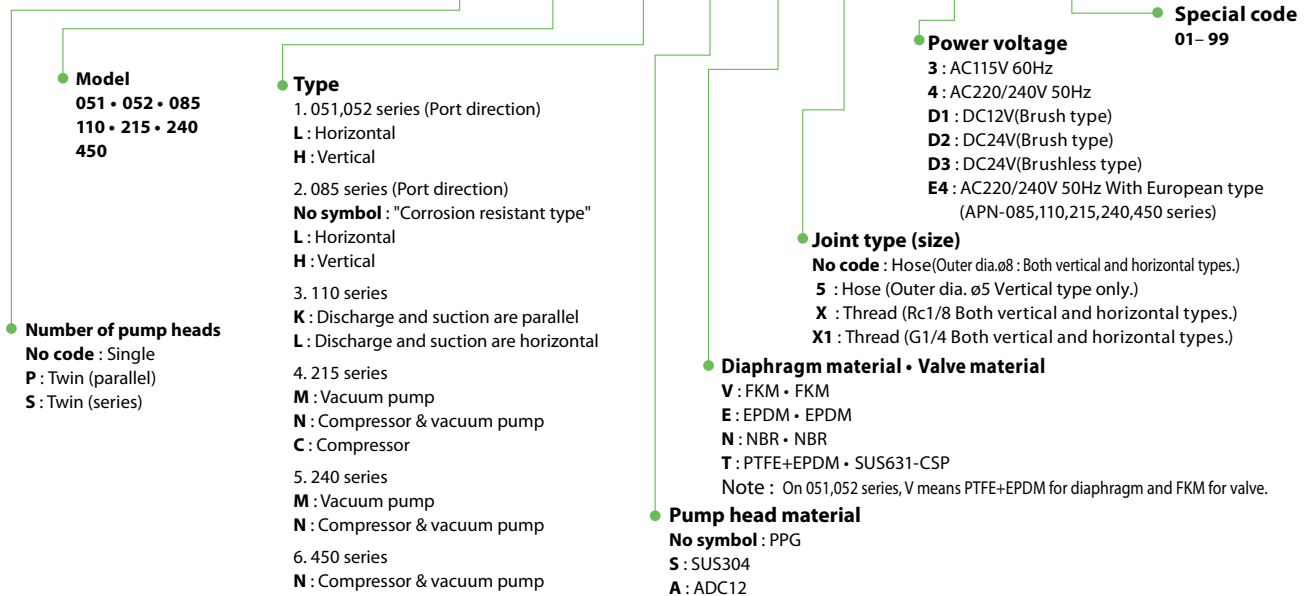


Twin series heads type



Pump identification

APN - S 450 N A T X - 1 - 01



Pump application guide

Available Available Not Available

Model	Compressor	Vacuum	Pumphead			Connection						
			Single	Parallel	Series	Hose Parallel	Hose Straight	Hose Vertical	Thread Parallel	Thread Straight	Thread Vertical	
APN-051L												
APN-051H												
APN-051H5												
APN-052L												
APN-052H												
APN-052H5												
APN-085												
APN-085L												
APN-085H												
APN-085 (Brushless type)												
APN-085L (Brushless type)												
APN-085H (Brushless type)												
APN-110K												
APN-110L												
APN-110K (Brushless type)												
APN-110L (Brushless type)												
APN-215N												
APN-215C												
APN-215M												
APN-240NA												
APN-240MA												
APN-450NA												
APN-450NS												

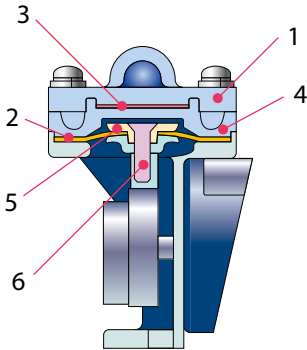
Specifications AC115V(60Hz)/AC220-240V(50Hz)

Model	Max.capacity L/min			Max.discharge pressure MPa	Max.vacuum kPa	Connection size		Motor						Mass kg
	AC 115V	AC 220-240V	DC			Hose	Screw	Input W			Current A			
				AC 115V	AC 220-240V			DC	AC 115V	AC 220-240V	DC			
APN-051L/H/H5	0.7	0.6	—	0.05	61.32	ø8, ø5	Rc1/8	15	14	—	0.15	0.14	—	0.5
APN-P051L/H/H5	1.4	1.2						20	18	—	0.2	0.18	—	
APN-S051L	1.8	1.5						—	13.33	ø8	—	—	—	
APN-052L/H/H5	2.1	1.8	—	0.05	61.32	ø8, ø5	Rc1/8	15	15	—	0.15	0.15	—	0.5
APN-P052L/H/H5	4.2	3.6						36	30	—	0.36	0.3	—	
APN-S052L	3.6	3.0						—	13.33	ø8	—	—	—	
APN-051L-D3	—	—	1.0	0.05	61.32	ø8	—	—	—	0.8(DC24V)	—	—	0.25(DC24V)	0.5
APN-052L/H-D1	—	—	1.8	0.05	61.32	ø8, ø5	—	—	—	4.8(DC12V)	—	—	1.25(DC12V)	
APN-052L/H-D2	—	—						—	—	4.9(DC24V)	—	—	0.63(DC24V)	
APN-085	6.0	5.0	—	0.08	61.32	ø8	Rc1/4 G1/4	25	29	—	0.15	0.11	—	1.9
APN-085L/H					34.66			—	—	15	—	—	1.2	
APN-085L/H-D3					—			6.0	—	—	—	—	1.2	
APN-P085L/H					12			10	—	—	—	0.3	0.15	
APN-S085L	6.0	5.0	—	—	7.99	—	—	38	38	—	0.3	0.15	—	2.6
APN-110K	14	12	—	0.1	23.99	ø8	Rc1/4 G1/4	—	48	—	—	0.23	—	2.5
APN-110L								—	—	15	—	—	1.4	
APN-110K/L-D3								—	—	14	0.05	—	—	
APN-P110L	28	24	—	0.1	—	—	—	—	68	—	—	0.33	—	3.8
APN-S110L	14	12	—	—	7.99	—	—	—	—	—	—	0.33	—	3.8
APN-215N	18	15	—	0.1	39.99	ø9	G1/8	64	64	—	0.56	0.3	—	3.5
APN-215C				0.2	—									
APN-215M				—	26.66									
APN-P215N	32	28	—	0.1	39.99	ø14	G1/4	95	95	—	0.93	0.5	—	5.2
APN-P215C	36	30		0.2	—									
APN-P215M				—	26.66									
APN-S215M	18	15	—	—	7.99	—	—	—	—	—	—	—	—	—
APN-240NAN	34	30	—	0.2	41.32	ø14	G1/4	60	60	—	2.1	1.2	—	7.0
APN-240MAN	36	32		—	21.33									
APN-P240NAN	68	60		0.2	41.32									
APN-P240MAN	72	64		—	21.33									
APN-S240MANX	36	32		—	6.67									
APN-450NA/S	60	50	—	0.1	13.33	ø12	Rc1/4	345	312(220V) 308(240V)	—	3.1	1.5 • 1.4	—	A12.0 S14.2
APN-P450NA/S	110	100												A12.8 S17.1
APN-S450NA/S	60	50												A13.0 S17.4

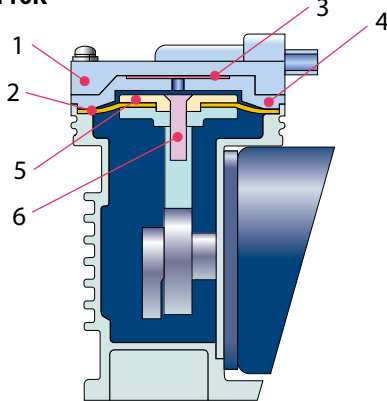
•Air flow temperature : 0-40°C •Ambient temperature : 5-40°C

Construction

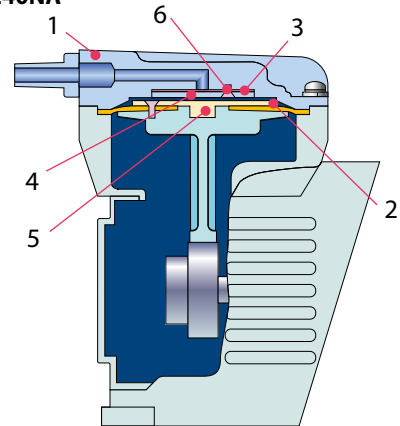
051L/052L



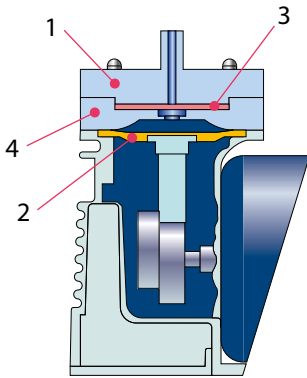
110K



240NA

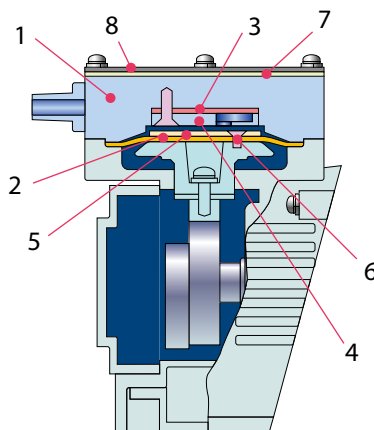


085,085L



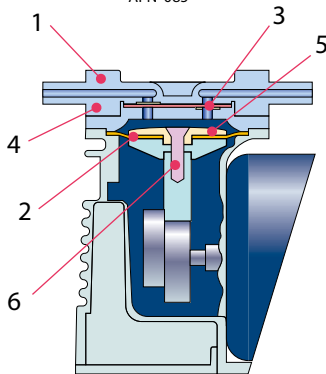
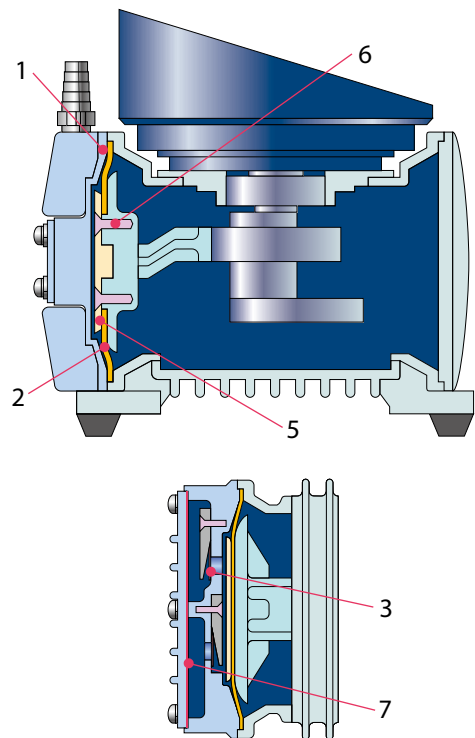
APN-085

215N/215M,215C

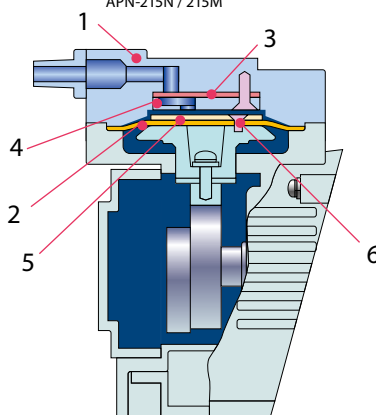


APN-215N / 215M

450NA



APN-085L



APN-215C

List of Available Materials

Symbol of Material Name

GFRPP Glass-fiber-reinforced polypropylene
 GFRPPS Glass-fiber-reinforced polyphenylene sulfide resin
 GFRPA Glass-fiber-reinforced polyamide resin
 PTFE Tetra-fluoroethylene resin
 FKM Fluorocarbon rubber

EPDM Ethylene propylene rubber
 NBR Nitrile butadiene rubber
 ADC12 Aluminum diecast
 SUS304 Stainless steel 304
 SUS631-CSP Stainless steel (strip steel for spring)

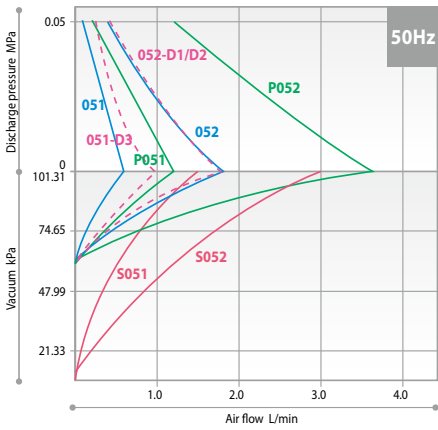
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Materials

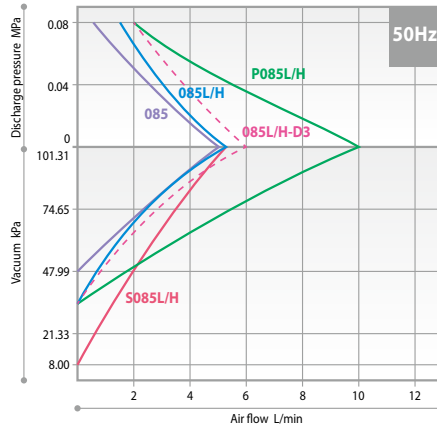
Model	051L,052L		085,085L			110K			215N		215C		215M		240	450		
	V	E	V	E	N	V	E	N	V	E	V	E	V	E		AT	ST	
1 Pump head	GFRPP		GFRPP			GFRPP			GFRPA		ADC12		GFRPP		ADC12	ADC12	SUS304	
2 Diaphragm	PTFE+EPDM	EPDM	FKM	EPDM	NBR	FKM	EPDM	NBR	FKM	EPDM	FKM	EPDM	FKM	EPDM	NBR	PTFE+EPDM		
3 Valve	FKM	EPDM	FKM	EPDM	NBR	FKM	EPDM	NBR	FKM	EPDM	FKM	EPDM	FKM	EPDM	FKM	SUS631-CSP		
4 Valve seat	GFRPP		GFRPP			GFRPP					GFRPPS				ADC12			
5 Retainer plate	GFRPPS		GFRPPS			GFRPPS					GFRPPS				ADC12		ADC12	SUS304
6 Screw	SUS304		SUS304			SUS304			SUS304		SUS304		SUS304		SUS304		SUS304	
7 Seal gasket									FKM EPDM				FKM EPDM				EPDM	FKM
8 Pump head cover									SUS304				GFRPP					

Performance curves

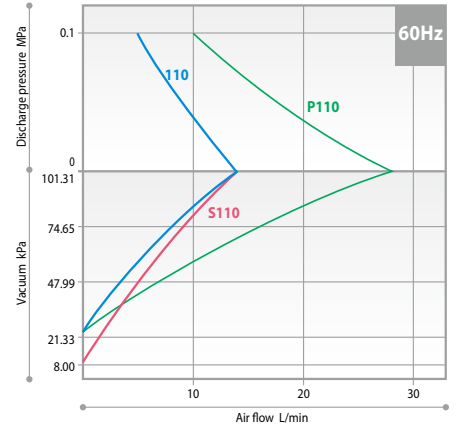
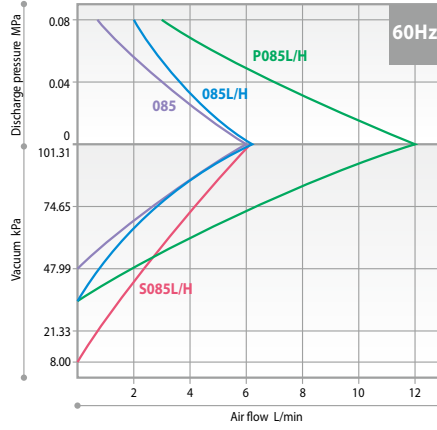
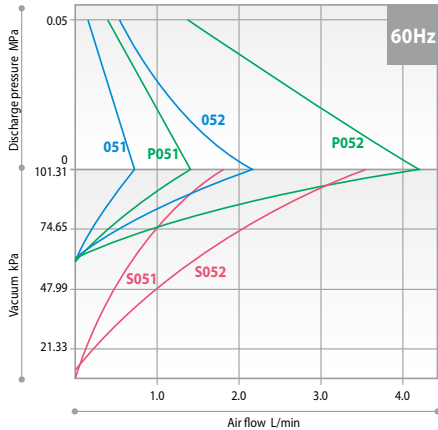
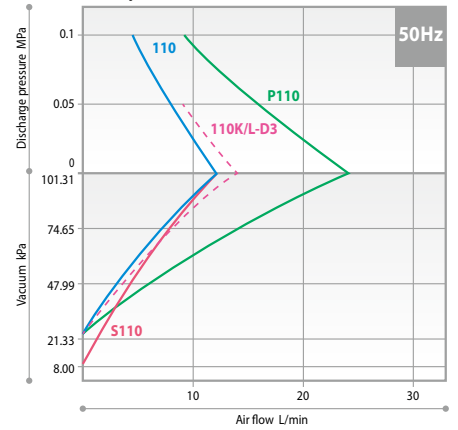
051L/052L,051/052DC



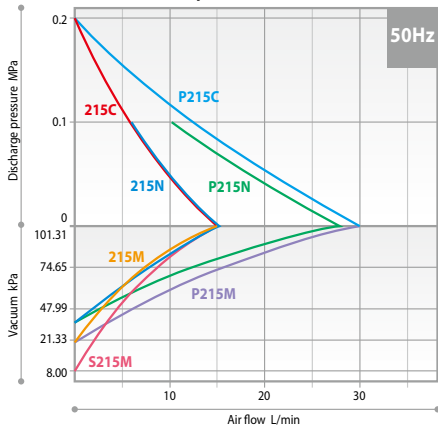
085/085L,085L/H-D3



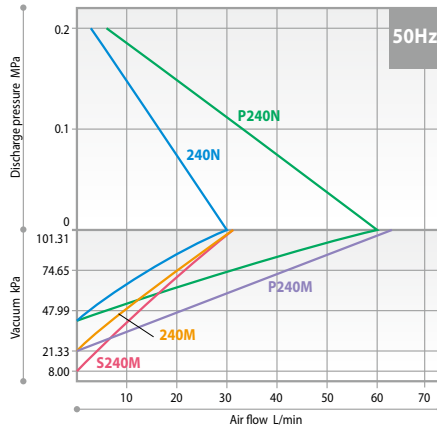
110K,110K/L-D3



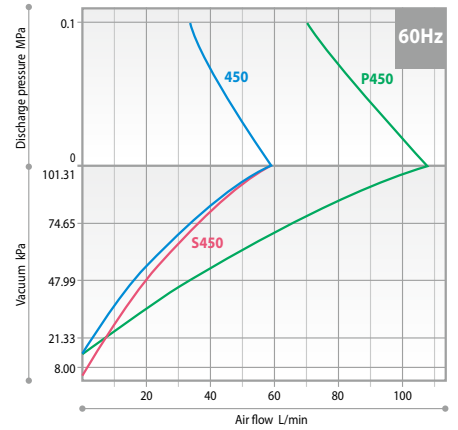
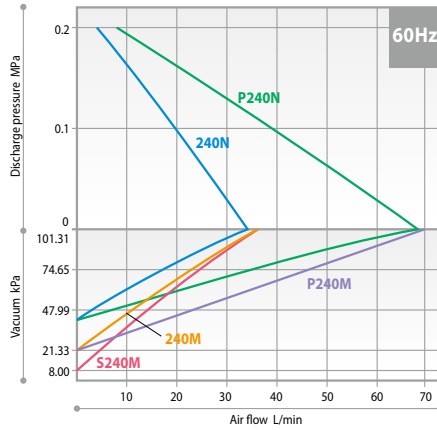
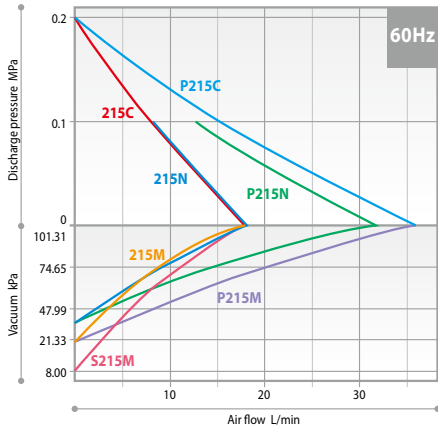
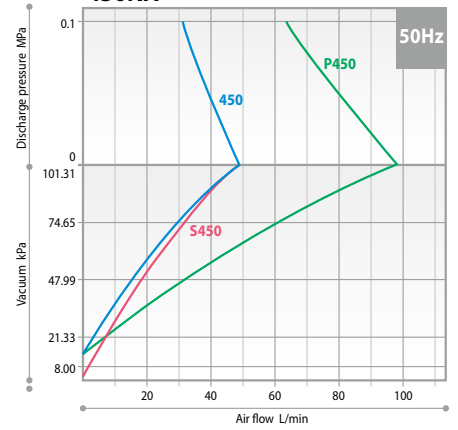
215N/215M,215C



240NA

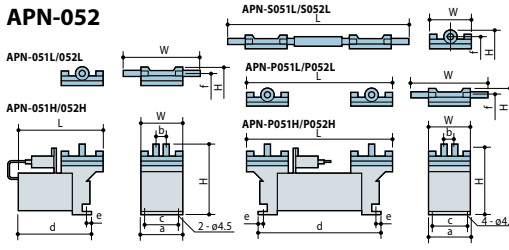


450NA



Dimensions in mm

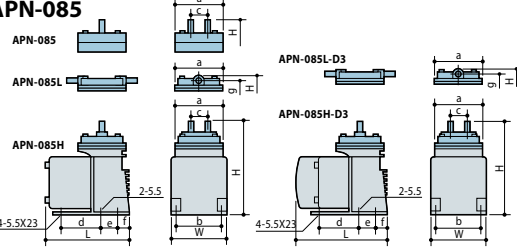
APN-052



Model	W	H	L	a	b	c	d	e	f
APN-051L/052L	86	(75)	(94)	46	—	32	(80)*	6.5	67
APN-051H/052H	46	(78)	—	—	—	—	—	—	—

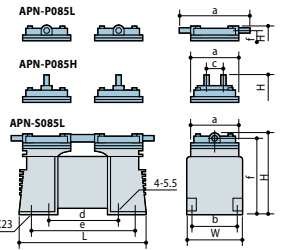
* Motor D1/D2: (77mm), Motor D3: (76mm)

APN-085



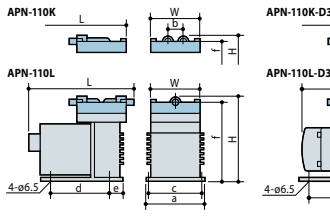
Model	W	H	L	a	b	c	d	e	f
APN-085	46	(78)	(162)	46	13	—	32	(135)	6.5
APN-085L	46	(75)	(202)	—	—	—	—	—	—

Model	W	H	L	a	b	c	d	e	f	g
APN-085	82.4	(136)	(124)	—	—	—	24	—	—	—
APN-085L	82.4	(121)	(124)	—	—	—	21.5	—	—	111
APN-085H	—	(140)	—	72	66	24	57	—	18.5	—
APN-085L-D3	—	(121)	(130)	—	—	—	—	—	—	111
APN-085H-D3	—	(80)	(140)	—	—	—	24	—	23	—

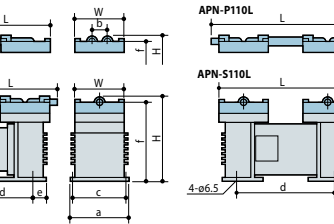


Model	W	H	L	a	b	c	d	e	f
APN-085L	82.4	(121)	—	—	—	—	—	—	—
APN-085H	82.4	(140)	(188)	72	66	24	108	151	—
APN-085L-D3	82.4	(121)	—	—	—	—	—	—	—

APN-110

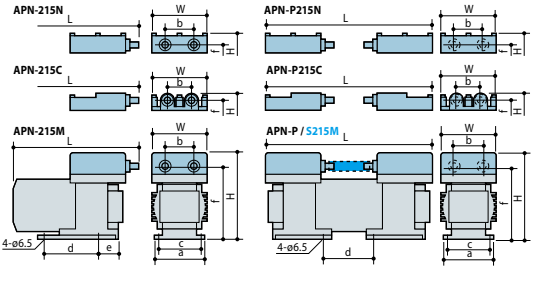


Model	W	H	L	a	b	c	d	e	f
APN-110K	—	—	(152)	—	24	—	—	—	—
APN-110L	78	(134)	(164)	86	—	74	91	24	124
APN-110K-D3	—	—	(129)	—	24	—	—	—	—
APN-110L-D3	—	—	(141)	—	—	—	—	—	—



Model	W	H	L	a	b	c	d	e	f
APN-110L	78	(134)	(236)	86	(104)	74	(154)	24	(124)
APN-110L-D3	102	(134)	(212)	86	(104)	74	(154)	24	(124)

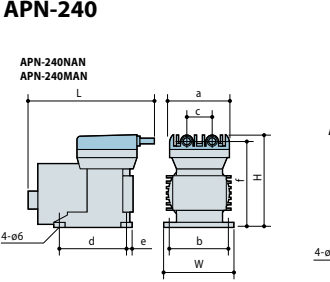
APN-215



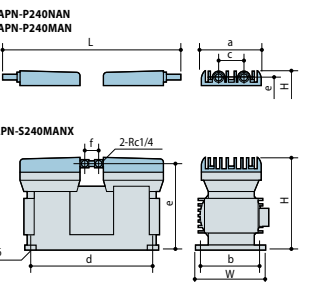
Model	W	H	L	a	b	c	d	e	f
APN-215N	—	(147)	—	50	—	—	—	—	(125)
APN-215C	Ø96	(140)	(195)	90	39	74	91	36	(130)
APN-215M	—	(151)	—	50	—	—	—	—	(125)

Model	W	H	L	a	b	c	d	e	f
APN-P/215N	—	(147)	—	50	—	—	—	—	(125)
APN-P/215C	Ø96	(140)	(282)	110	39	78	(90)	—	(130)
APN-P/215M	—	(151)	—	50	—	—	—	—	(125)

APN-240

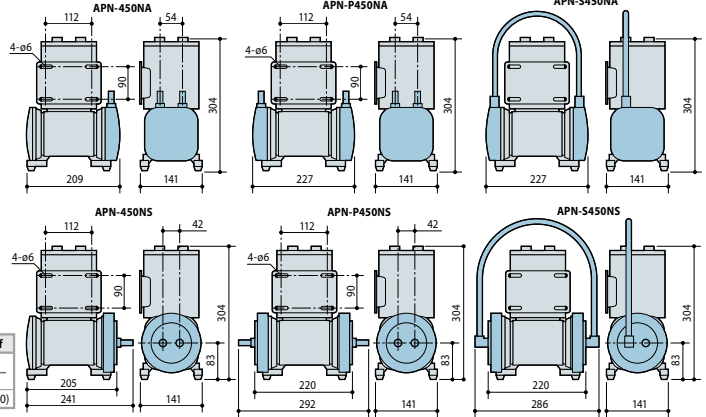


Model	W	H	L	a	b	c	d	e	f
APN-240NAN	140	(186)	(219)	122	125	48	135	(26)	(173)
APN-240MAN	—	—	—	—	—	—	—	—	—



Model	W	H	L	a	b	c	d	e	f
APN-240MAN	140	(186)	(297)	122	125	48	(245)	(173)	—
APN-240MANX	—	—	—	—	—	—	—	—	(30)

APN-450



Optional accessory

Filter and Muffler

To be used as muffler when installed at discharge side and also as filter when installed at suction side. (Check valve incorporated filter is available as option)



AF-2V-1C

	1	2	3
1. Materials	V: FKM	E: EPDM	
	N: CR/NBR(Gasket, O ring, Check valve)		
2. Connection	1: G1/8(For type 215)		
	2: G1/4(For type 085 and 110)		
3. Option	C: With Check valve		

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Caution for safety use: Before use of pump, read instruction manual carefully to use the product correctly. Actual pumps may differ from the photos. Specifications and dimensions are subject to change without prior notice. For further details please contact us.

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