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Leybold DIP Series
Technical Specifications

		DIP 3 000	DIP 8 000	DIP 12 000
High vacuum / forevacuum connection	DN	250 ISO-K / 63 ISO-K	400 ISO-K / 63 ISO-K	500 ISO-K / 100 ISO-K
Pumping speed for air [1] below 1 x 10^{-4} mbar	l/s	3 000	8 000	12 000
Operating range	mbar (Torr)	< 10^{-2} to 10^{-7} (0.75 x 10^{-2} to 0.75 x 10^{-7})	< 10^{-2} to 10^{-7} (0.75 x 10^{-2} to 0.75 x 10^{-7})	< 10^{-2} to 10^{-7} (0.75 x 10^{-2} to 0.75 x 10^{-7})
Ultimate total pressure [1]	mbar (Torr)	< 5.0 x 10^{-7} (3.75 x 10^{-7})	< 5.0 x 10^{-7} (3.75 x 10^{-7})	< 5.0 x 10^{-7} (3.75 x 10^{-7})
Max. permissible forevacuum pressure	mbar (Torr)	6.0 x 10^{-2} (4.5 x 10^{-2})	6.0 x 10^{-2} (4.5 x 10^{-2})	6.0 x 10^{-2} (4.5 x 10^{-2})
Pump fluid filling, min. / max.	l (qts)	1.0 / 1.4 (1.1 / 1.5)	1.7 / 3.4 (1.8 / 3.6)	2.4 / 5.3 (2.5 / 5.6)
Mains connection				
Standard EURO, 50/60 Hz	V	230 ~ 1 Ph	400 ~ 3 Ph Y	400 ~ 3 Ph Y
Standard Americas, 50/60 Hz	V	230 ~ 1 Ph	460 ~ 3 Ph Y	460 ~ 3 Ph Y
Special, 50/60 Hz	V	–	230 ~ 3 Ph Δ	230 ~ 3 Ph Δ
Heating power	kW	2.4	4.8	7.2
Number of heating cartridges		2	6	9
Heating up time	min	< 25	< 25	< 25
Cooling water (minimum)				
for pump [2]	l/h (gal/min)	160 (0.7)	290 (1.28)	500 (2.2)
for cold cap baffle	l/h (gal/min)	20 (0.09)	30 (0.13)	50 (0.22)
max. supply pressure	bar (psig)	6 (87)	6 (87)	6 (87)
Number of cooling circuits (including cold cap baffle)		2	2	2
Cooling water connection				
for pump	G (BPS)	3/8"	1/2"	1/2"
for cold cap baffle	G (BPS)	1/4"	3/8"	3/8"
Weight, approx.	kg (lbs)	29 (64)	70 (154)	102 (225)
Recommended backing pump [3]				
at operating pressures > 10^{-4} mbar (> 0.75 x 10^{-4} Torr)		TRIVAC D 65 B + W 251	SV 300 + W 251	SV 300 + W 501
at operating pressures < 10^{-4} mbar (< 0.75 x 10^{-4} Torr)		–	TRIVAC D 65 B + W 251	TRIVAC D 65 B + W 251

		DIP 20 000	DIP 30 000	DIP 50 000
High vacuum / forevacuum connection	DN	630 ISO-F / 100 ISO-K	800 ISO-F / 160 ISO-K	1000 ISO-F / 160 ISO-K
Pumping speed for air [1] below 1 x 10^{-4} mbar	l/s	20 000	30 000	50 000
Operating range	mbar (Torr)	< 10^{-2} to 10^{-7} (0.75 x 10^{-2} to 0.75 x 10^{-7})	< 10^{-2} to 10^{-7} (0.75 x 10^{-2} to 0.75 x 10^{-7})	< 10^{-2} to 10^{-7} (0.75 x 10^{-2} to 0.75 x 10^{-7})
Ultimate total pressure [1]	mbar (Torr)	< 5.0 x 10^{-7} (3.75 x 10^{-7})	< 5.0 x 10^{-7} (3.75 x 10^{-7})	< 5.0 x 10^{-7} (3.75 x 10^{-7})
Max. permissible forevacuum pressure	mbar (Torr)	6.0 x 10^{-2} (4.5 x 10^{-2})	6.0 x 10^{-2} (4.5 x 10^{-2})	6.0 x 10^{-2} (4.5 x 10^{-2})
Pump fluid filling, min. / max.	l (qts)	7.0 / 11.0 (7.4 / 11.6)	10.0 / 15.0 (10.6 / 15.9)	15.0 / 25.0 (15.9 / 26.4)
Mains connection				
Standard EURO, 50/60 Hz	V	400 ~ 3 Ph Y	400 ~ 3 Ph Y	400 ~ 3 Ph Y
Standard Americas, 50/60 Hz	V	460 ~ 3 Ph Y	460 ~ 3 Ph Y	460 ~ 3 Ph Y
Special, 50/60 Hz	V	230 ~ 3 Ph Δ	230 ~ 3 Ph Δ	230 ~ 3 Ph Δ
Reduced power consumption through power controller (saves up 30%)	kW	8.4	12.6	16.8
Heating power	kW	12	18	24
Number of heating cartridges		12	18	24
Heating up time	min	< 25	< 30	< 30
Cooling water (minimum)				
for pump [2]	l/h (gal/min)	600 (2.6)	900 (4.0)	1500 (6.6)
for cold cap baffle	l/h (gal/min)	60 (0.26)	80 (0.35)	150 (0.66)
max. supply pressure	bar (psig)	6 (87)	6 (87)	6 (87)
Number of cooling circuits (including cold cap baffle)		2	3	3
Cooling water connection				
for pump	G (BPS)	1/2"	1/2"	1/2"
for cold cap baffle	G (BPS)	3/8"	3/8"	3/8"
Weight, approx.	kg (lbs)	172 (379)	296 (653)	560 (1235)
Recommended backing pump [3]				
at operating pressures > 10^{-4} mbar (> 0.75 x 10^{-4} Torr)		SV 200 + W 501	SV 300 + W 1001	SV 630 B + W 2001
at operating pressures < 10^{-4} mbar (< 0.75 x 10^{-4} Torr)		TRIVAC D 65 B + W 251	SV 300 + W 251	SV 300 + W 501

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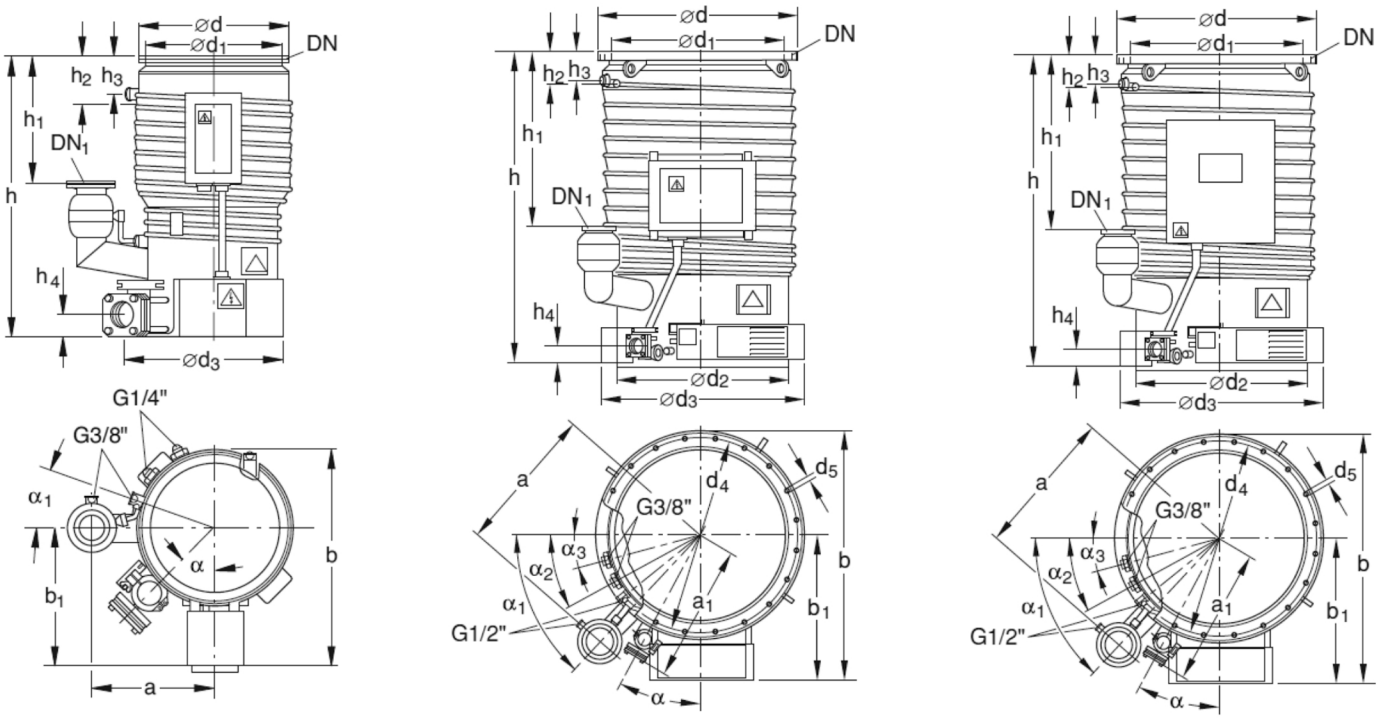
Dimensions



DIP	3 000	8 000	12 000	20 000	30 000	50 000
DN	250 ISO-K	400 ISO-K	500 ISO-K	630 ISO-F	800 ISO-F	1000 ISO-F
DN_1	63 ISO-K	63 ISO-K	100 ISO-K	100 ISO-K	160 ISO-K	160 ISO-K
a	240 (9.45)	350 (13.78)	420 (16.54)	540 (21.26)	600 (23.62)	800 (31.5)
a_1	250.5 (9.86)	375.5 (14.78)	432 (17)	496 (19.53)	536 (21.10)	636 (25.04)
b	443 (17.44)	643 (25.31)	775 (30.51)	980 (38.58)	1150 (45.28)	1350 (53.15)
b_1	276 (10.87)	373 (14.69)	460 (18.11)	600 (23.62)	690 (27.17)	790 (31.10)
d	290 (11.42)	450 (17.72)	550 (21.65)	750 (29.53)	920 (36.22)	1120 (44.09)
d_1	261 (10.28)	400 (15.75)	50119.72)	651 (25.63)	800 (31.5)	1000 (39.37)
d_2	–	405 (15.94)	506 (19.92)	636 (25.04)	716 (28.19)	916 (36.06)
d_3	278 (10.94)	530 (20.87)	630 (24.80)	760 (29.92)	840 (33.07)	1040 (40.94)
d_4	–	–	–	720 (28.35)	890 (35.04)	1090 (42.91)
d_5	–	–	–	14 (0.55)	14 (0.55)	14 (0.55)
Quantity of holes	–	–	–	20	24	32
h	560 (22.05)	785 (30.91)	940 (37)	1130 (44.49)	1450 (57.09)	1880 (74.02)
h_1	250 (9.84)	400 (15.75)	470 18.5)	620 (24.41)	870 (34.25)	1275 (50.2)
h_2	68 (2.68)	88 (3.46)	92 (3.62)	97 (3.82)	102 (4.02)	102 (4.02)
h_3	75 (2.95)	102 (4.02)	106 (4.17)	110 (4.33)	116 (4.57)	116 (4.57)
α	45°	30°	30°	30°	20°	25°
α_1	20°	45°	45°	45°	45°	45°
α_2	–	30°	30°	30°	30°	25°
α_3	–	15°	15°	15°	15°	15°

Dimensional drawing for the DIP 3000 [left], DIP 8000 and DIP 12000 [middle], DIP 20 000 to DIP 50 000 [right]; dimensions in brackets ( ) are in inch

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Leybold DIP Series

Features & Benefits

- rugged design
- no wearing or moving components
- prolonged maintenance intervals
- rapid & simple replacement of heating elements
- stable, high vacuum
- high forevacuum tolerance & pumping speed
- safe & economical
- simple to operate
- flexible electrical wiring for worldwide depolyment

Applications

- indsutrial high vacuum applications • vacuum coating • metallurgy
- vacuum furnaces • vacuum drying • space simulation • research & development • mechanical engineering • steel production processes

Pumping Curves