LDP & LDP-X

End Suction Pumps

DRAKOS·POLEMIS

LDP, LDP-X series

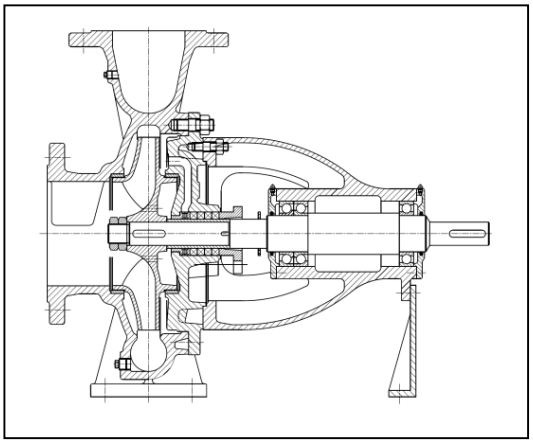
Fields of application

- Water supply
- Fire-fighting systems
- Sprinkling
- Irrigation
- Drainage
- Heating
- Air-con systems
- Drinking water
- Service water
- Hot water
- Cooling water
- Swimming pool water
- Sea water
- Fire-fighting water
- Brackish water
- Condensate
- Brine
- Oils
- Cleaning agents

Operating data

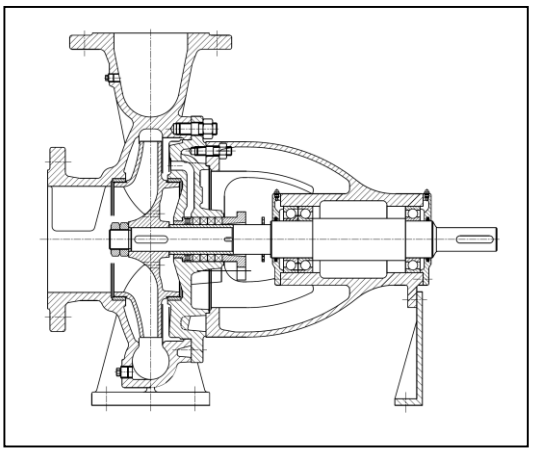
- Q up to 2000 m³/h
- H up to 100 m
- Temperature -30 ˚C to +140 ˚C
- Pressure up to 16 bar

Construction



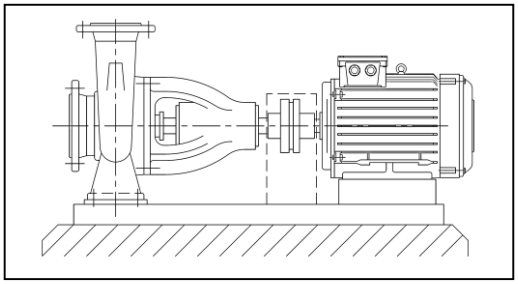
Type LDP

Pumps of the LDP, LDP-X series are horizontal volute casing centrifugal pumps. The principal dimensions and performance data of LDP type comply with DIN 24255. LDP-X type is outside of the official DIN-Norm. Dimensions can differ from other suppliers.

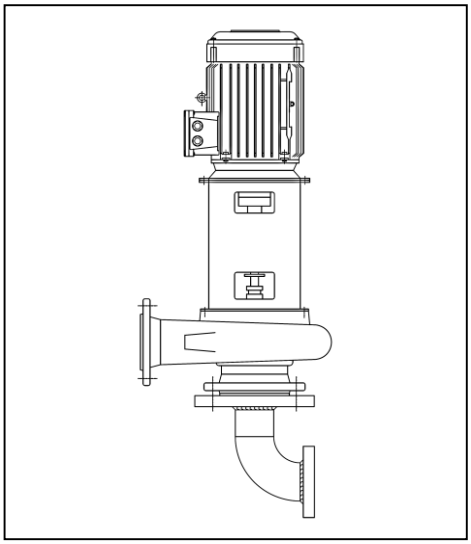


Type LDP-X

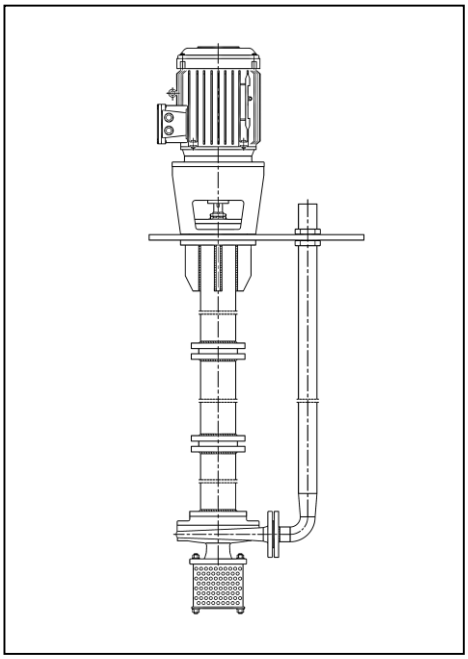
The components are factory-standardized and therefore largely. The major components of the horizontal LDP, LDP-X range are also used in the vertical configurations V for dry or wet sump installations and to some extent for the vertical floor mounted and close coupled mono-bloc types DP-block.



Standard horizontal installation



Direct vertical installation (VD)

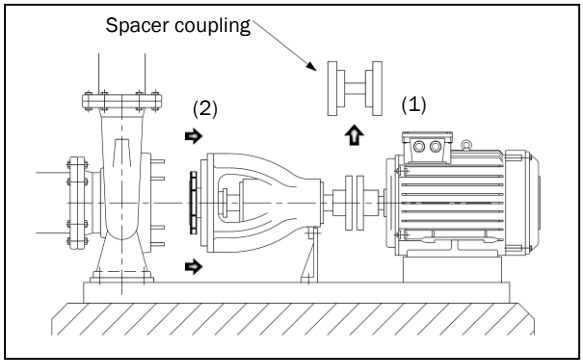


Vertical wet sump installation (VW)

LDP, LDP-X pumps are used primarily for handling clean or slightly abrasive media. The liquid should not contain any coarse or highly abrasive solids in order to prevent operational problems and premature wear. Where necessitated by the operating conditions the pump.

The suction and discharge flanges are according to DIN 2501 PN 10 or 16. All pumps are dynamically balanced according to ISO 1940 class G 6.3 and impellers are hydraulically balanced.

Due to the pump design the complete bearing assembly including impeller and shaft seal can be dismantled without removing the volute casing from the pipe system (back-pull-out system).



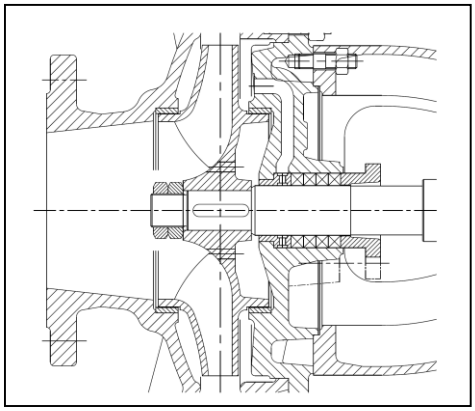
Casing and impeller can be fabricated from special materials, e. g. zinc-free bronze G-CuSn, SG iron GGG 40, or Stainless Steel 1.4408. With casing pressures of up to 16 bar, details on application.

Casing/Impeller

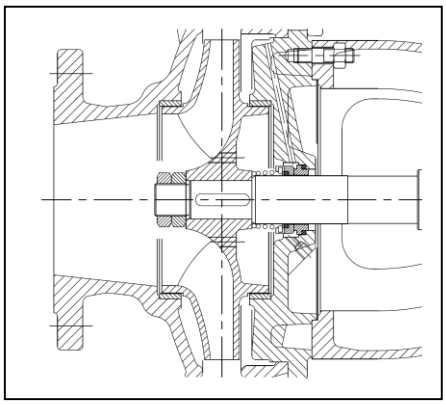
The pump casing is of the volute type fitted with a suction side wear ring. If required, e.g. as part of subsequent repair work, the gland/seal housing can easily be machined for a delivery side wearing ring, too.
All impellers are dynamically balanced and hydraulically relieved by means of compensating bores.

Shaft and bearings

Pump with overhung bearing housing to DIN 24255. Shaft rotates in grease lubricated anti friction bearings. Re-greasing by funnel-type grease nipple. If required, the bearing housing can be equipped with a support foot at the drive end. A bearing pedestal is available for heavy duty drive applications, e.g. V-belts.



Stuffing box with gland packing



Stuffing box with mechanical seal

The standard arrangement is a packed gland for temperatures up to 110 °C.
For temperatures up to 140 °C a drip-tight maintenance free mechanical seal, according to DIN 24960 dimensions. Back-to-back double mechanical shaft seals, and "quench", are available for all variants on request.

An internal by-pass connects the pump casing with the stuffing box to ensure lubrication of the gland packing. When pumping from a vacuum tank or where the liquid to be pumped contains abrasive particles it is preferable to feed the stuffing box with an external sealing liquid. In this event the internal by-pass will be plugged.

Base frame

Pump and motor mounted on fabricated steel base frame which must be fixed with foundation bolts on a concrete base and subsequently grouted in. base frames are constructed from welded profile sections.

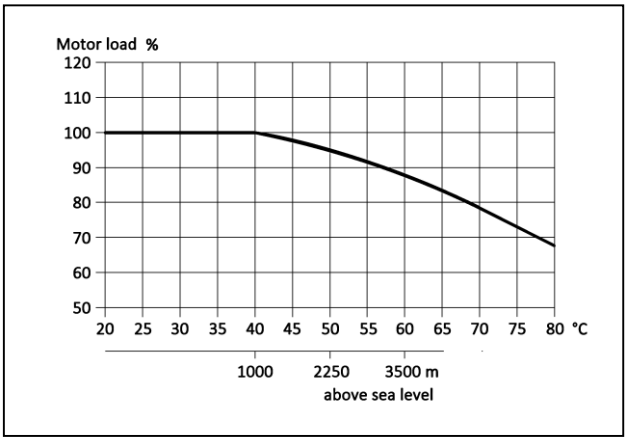
Coupling

Two-component flexible coupling without spacer or Three-component flexible coupling with spacer. This coupling allows the removal of the pump rotor without the need for disconnecting the motor and pipe-work. If the pump housing, motor or the entire unit is moved, alignment is always necessary.
All couplings are supplied with a guard.

Motor

Pump direct driven by standard B3 foot mounted motor through flexible coupling.
Direction of rotation is clockwise looking at the pump shaft end. For maximum permissible speeds, depending on electric motors with 50 or 60 cycles supply, refer to page 4.

Mounting designation	B3 (IM 1001)
Enclosure class	IP 55
Insulation class	F
Ambient temperature	Max. 40˚C
Voltages	3 x 220-240/380-415 V



Selection of motors

The power required to achieve the requested duty point can be found by means of the power chart below the performance chart. Find the power curve corresponding to the required QH-value (or interpolate between curves). When deciding the motor size a safety margin acc. ISO 5199 must be added.

Safety margins according to ISO 5199

Up to required pump shaft power: [kW]	Use motor output P_2: [kW]
322	355
286	315
227	250
181	200
145	160
120	132
100	110
81	90
68	75
49	55
40	45
32.5	37
26	30
19	22

Up to required pump shaft power: [kW]	Use motor output P_2: [kW]
15.9	18.5
12.8	15
9.1	11
6.1	7.5
4.3	5.5
3.2	4
2.3	3
1.7	2.2
1.1	1.5
0.81	1.1
0.55	0.75
0.40	0.55
0.27	0.37
0.18	0.25

Ambient temperature

Up to +40˚C.
Due to the low density and consequent low cooling effect of the air, operation at an ambient temperature above 40 ˚C or at an altitude exceeding 1000 m above sea level requires a reduction of the rated motor load.

Range (Type LDP)

Pump type	Maximum permissible working pressure [1] Temp. -20 °C up to 110 °C Volute material: GG 25 cast iron bar	Temp. -20 °C up to 110 °C Volute material: G-CuSn10 bronze bar	Temp. 110 °C up to 140 °C Volute material: GG 25 cast iron bar	Temp. 110 °C up to 140 °C Volute material: G-CuSn10 bronze bar	Max. permissible pump speed [4] min-1	Max. permissible power absorbed kW [2] 1450 min-1	1750 min-1	2900 min-1	3500 min-1
32-125	10	8	8	6	3600	3,3	4	6,6	8
32-160	10	8	8	6	3600	3,3	4	6,6	8
32-200	10	8	8	6	3600	14,5	17,7	29	35
32-250	10	8	8	6	3600 [3]	14,5	17,7	29	35
40-125	10	8	8	6	3600	3,3	4	6,6	8
40-160	10	8	8	6	3600	14,5	17,7	29	35
40-200	10	8	8	6	3600	14,5	17,7	29	35
40-250	10	8	8	6	3600 [3]	14,5	17,7	29	35
40-315	10	8	8	6	1800	49	59,8		
50-125	10	8	8	6	3600	14,5	17,7	29	35
50-160	10	8	8	6	3600	14,5	17,7	29	35
50-200	10	8	8	6	3600	14,5	17,7	29	35
50-250	10	8	8	6	3600 [3]	14,5	17,7	29	35
50-315	10	8	8	6	1800	49	59,8		
65-125	10	8	8	6	3600	14,5	17,7	29	35
65-160	10	8	8	6	3600	14,5	17,7	29	35
65-200	10	8	8	6	3600	14,5	17,7	29	35
65-250	10	8	8	6	3600 [3]	49	59,8	98	118
65-315	10	8	8	6	1800	49	59,8		
80-160	10	8	8	6	3600	14,5	17,7	29	35
80-200	10	8	8	6	3600	49	59,8	98	119
80-250	10	8	8	6	3000	49	59,8	98	
80-315	10	8	8	6	1800	49	59,8		
100-200	10	8	8	6	3600	49	59,8	98	118
100-250	10	8	8	6	3000	49	59,8	98	
100-315	10	7	6	4	1800	49	59,8		
100-400	10	7	6	4	1800 [3]	120	146		
125-250	10	7	6	4	1800	49	59,8		
125-315	10	7	6	4	1800	120	146		
125-400	10	7	6	4	1800 [3]	120	146		
150-250	10	7	6	4	1800	49	59,8		
150-315	10	7	6	4	1800	120	146		
150-400	10	7	6	4	1800 [3]	120	146		

1) The maximum permissible working pressure includes the pressure at the suction branch (positive suction head) and the maximum generated head at zero flow (closed valve).
2) If pumps are driven by direct coupled diesel/petrol engines the permissible kW ratings must be reduced by 20%. This also applies to pumps filled with 1.4401 stainless steel shafts. If the power absorbed by the pump is already at or near the maximum figure then only a nominal motor kW margin is allowed.
3) Pump output / head at 60 Hz speeds must not exceed the maximum values shown on the corresponding 50 Hz curves.
4) Maximum speeds shown apply to pumps driven via a flexible coupling (direct from motor or stub shaft with plummer blocks). Applications involving overhung pulleys must be referred to our works specifying the proposed performance data.

Applications involving higher pressures and different casing materials must be referred to our works.

Range (Type LDP-X)

Pump type	Maximum permissible working pressure [1] Temp. -20 °C up to 110 °C Volute material: GG 25 cast iron bar	Temp. -20 °C up to 110 °C Volute material: G-CuSn10 bronze bar	Temp. 110 °C up to 140 °C Volute material: GG 25 cast iron bar	Temp. 110 °C up to 140 °C Volute material: G-CuSn10 bronze bar	Max. permissible pump speed [3] min-1	Max. permissible power absorbed kW [2] 780 min-1	1170 min-1	1450 min-1	1770 min-1
150-200	10	7	6	4	2000			49	59,8
200-330	10	5	6	4	1800	81	96	120	146
200-400	10	5	6	4	1800	135	161	250	305
200-500	10	6	7	5	1500	135	161	250	
250-400	10	5	6	4	1800	135	161	250	305
250-500	10	6	7	5	1500	202	242	315	
300-360	6	4	4	3	1800	135	161	250	305

1) The maximum permissible working pressure includes the pressure at the suction branch (positive suction head) and the maximum generated head at zero flow (closed valve).
2) If pumps are driven by direct coupled diesel/petrol engines the permissible kW ratings must be reduced by 20%. This also applies to pumps filled with 1.4401 stainless steel shafts. If the power absorbed by the pump is already at or near the maximum figure then only a nominal motor kW margin is allowed.
3) Maximum speeds shown apply to pumps driven via a flexible coupling (direct from motor or stub shaft with plummer blocks). Applications involving overhung pulleys must be referred to our works specifying the proposed performance data.

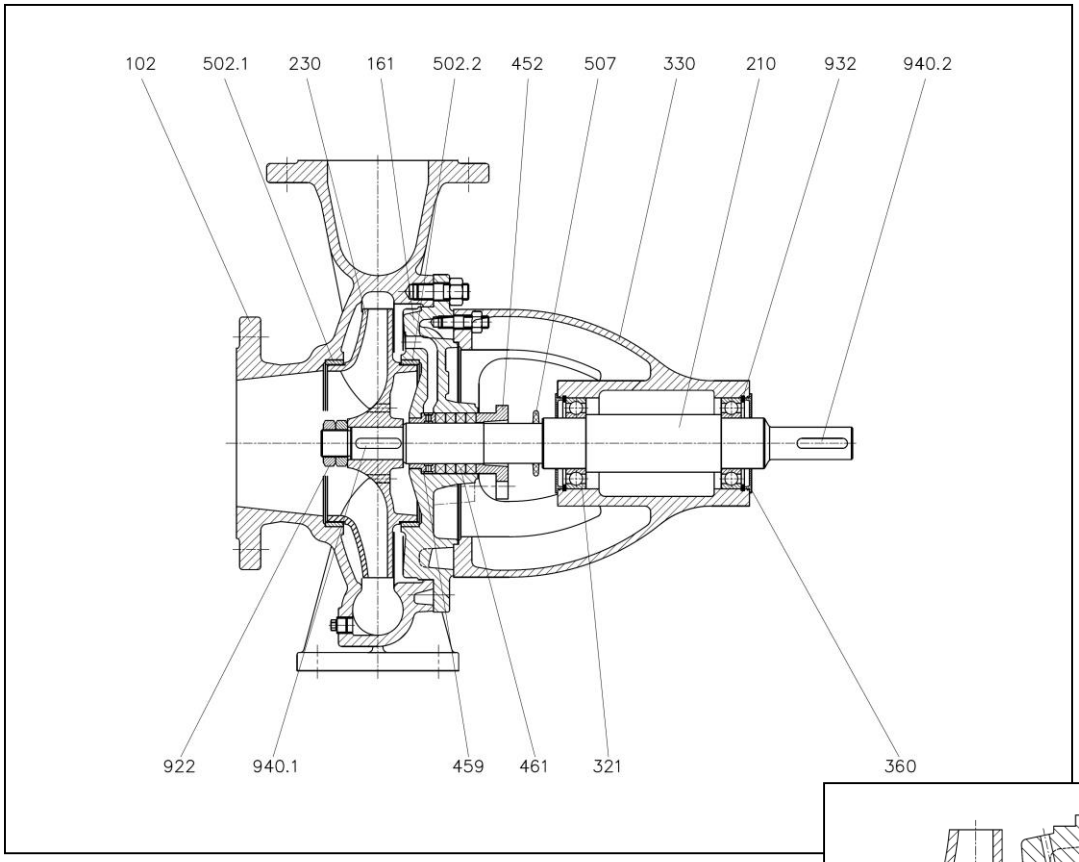
Applications involving higher pressures and different casing materials must be referred to our works.

Standardized versions of materials

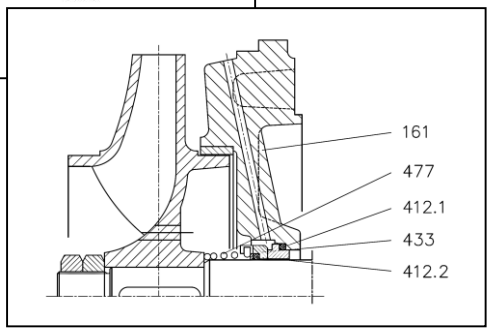
	Category 0	Category 2	Category 3	Category 4	Category 5	Category 13
Volute casing	Cast Iron GG25	Cast Iron GG25	CuSn10	Cast Iron GG25	Cast Iron GG25	AISI-316
Discharge cover	Cast Iron GG25	Cast Iron GG25	CuSn10	Cast Iron GG25	Cast Iron GG25	AISI-316
Impeller	Cast Iron GG25	CuSn10	CuSn10	Bronze SAE 40	Cast Iron GG25	AISI-316
Wear rings	Cast Iron GG25	CuSn10	CuSn10	Cast Iron GG25	Cast Iron GG25	AISI-316
Shaft	Ck60	AISI-304	AISI-304	AISI-420	AISI-420	AISI-316
Shaft sleeve	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Bearing bracket	Cast Iron GG25	Cast Iron GG25	Cast Iron GG25	Cast Iron GG25	Cast Iron GG25	Cast Iron GG25

Sectional drawings – part lists

Type LDP



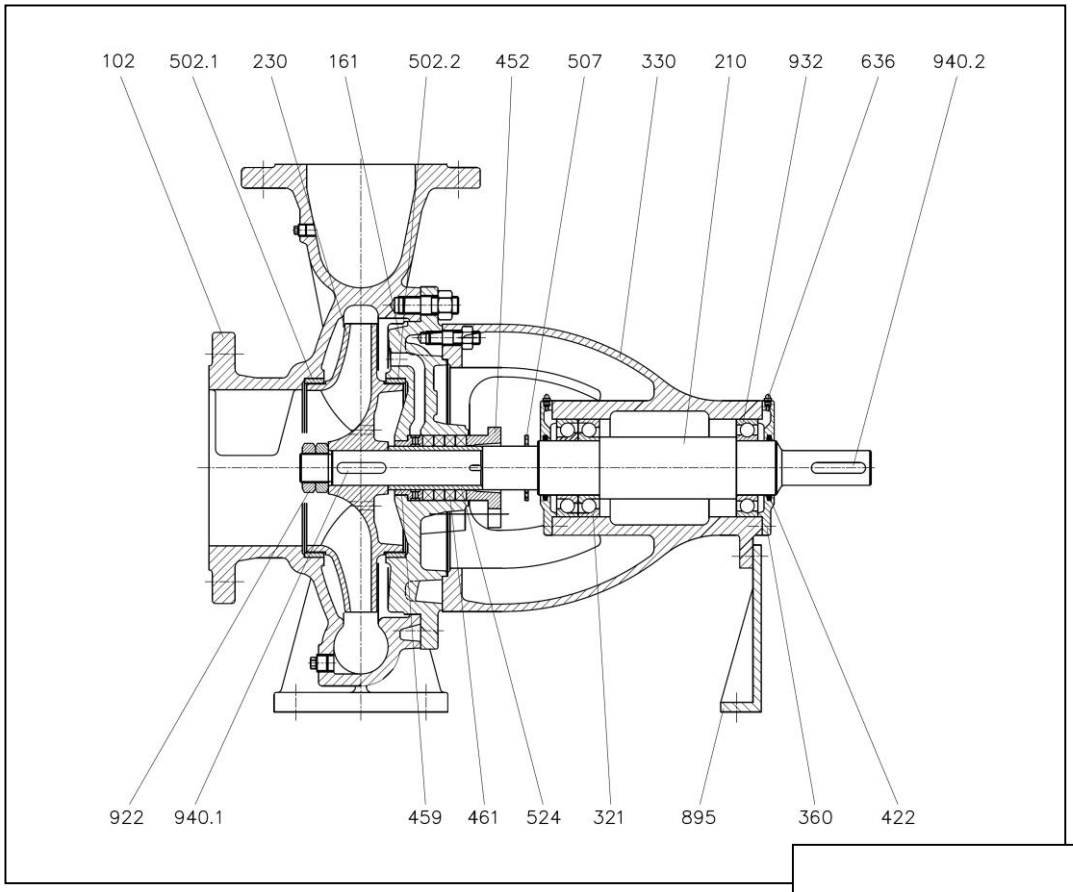
LDP type sectional view (gland packing)



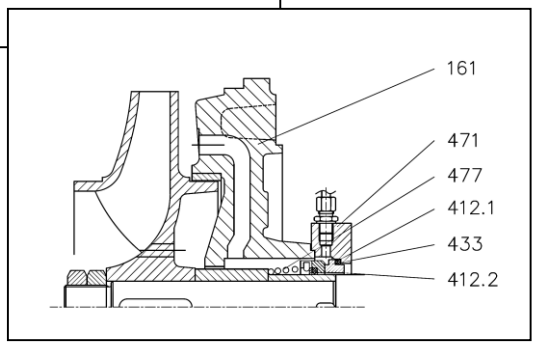
Detail for mechanical seal

Part number to VDMA	Part name	Part number to VDMA	Part name
102	Casing	452	Stuffing box gland
161	Casing cover	459	Stuffing box bushing
210	Shaft	461	Stuffing box packing
230	Impeller	477	Spring
321	Ball bearing	502	Wear ring
330	Bearing bracket	507	Deflector
360	Bearing cover	922	Impeller nut
412	Casing O-ring	932	Retaining ring for bores
433	Mechanical seal	940	Key

Type LDP-X



LDP-X type sectional view (gland packing)

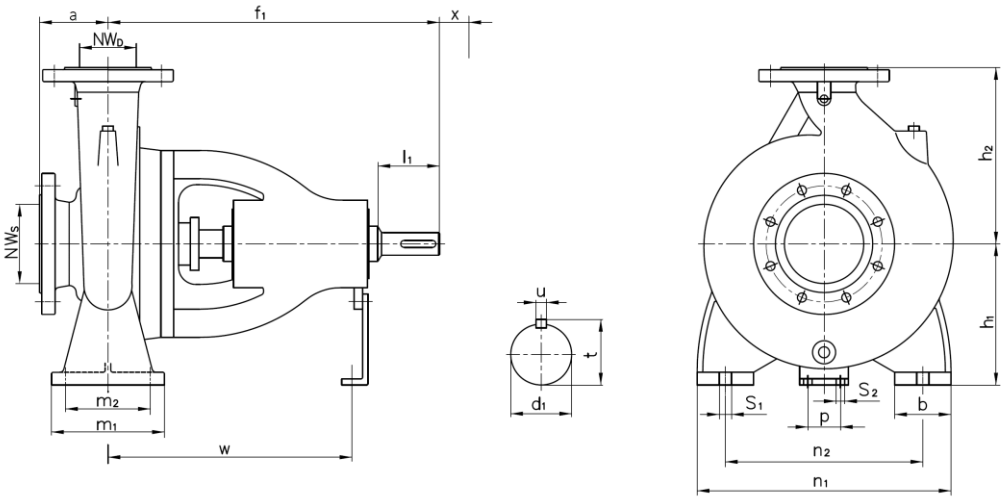


Detail for mechanical seal

Part number to VDMA	Part name	Part number to VDMA	Part name
102	Casing	461	Stuffing box packing
161	Casing cover	471	Seal cover
210	Shaft	477	Spring
230	Impeller	502	Wear ring
321	Ball bearing	507	Deflector
330	Bearing housing	524	Shaft sleeve
360	Bearing cover	636	Grease nipple
412	O-Ring	895	Supporting foot
422	Sealing ring	922	Impeller nut
433	Mechanical seal	932	Retaining ring for bores
452	Stuffing box gland	940	Key
459	Stuffing box bushing		

Bare shaft pump dimensions

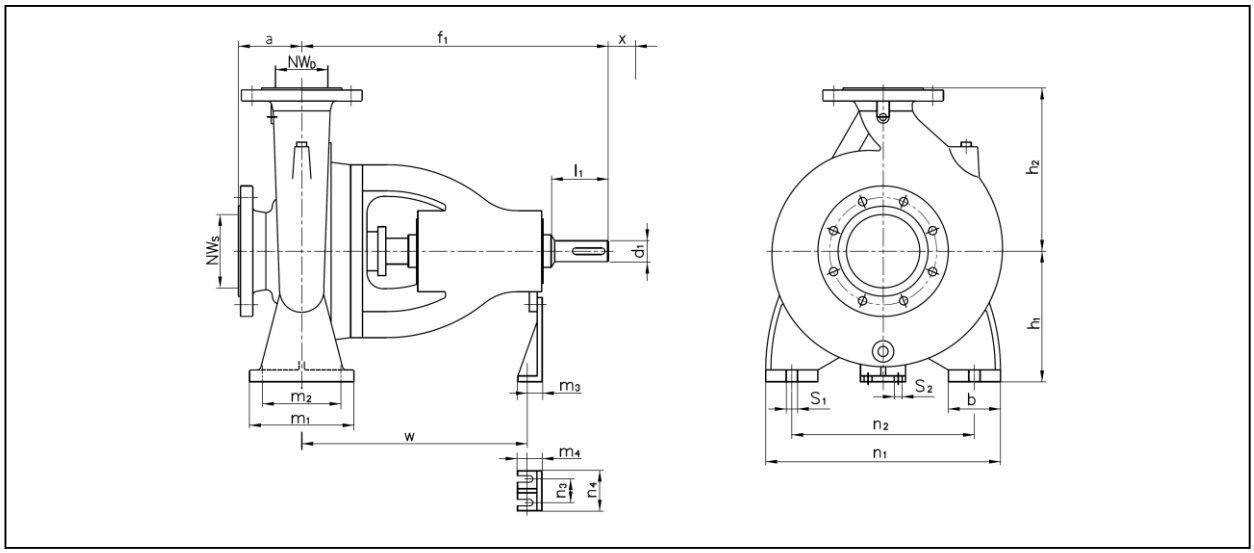
Type LDP



Pump size	Dimensions (mm)																			
	NW_S	NW_D	Length		Height		Feet & support mounting details									Shaft end				x*
			a	f_1	h_1	h_2	b	m_1	w	p	S_1	m_2	n_1	n_2	S_2	d_1	l_1	t	u	
32-125	50	32	80	360	112	140	50	100	260	110	M12	70	190	140	14	24	50	27	8	110
32-160					132	160							240	190						80
32-200					160	180														
32-250			100		180	225	65	125				95	320	250						100
40-125	65	40	80		112	140	50	100				70	210	160						110
40-160					132	160							240	190						85
40-200			100		160	180							265	212						
40-250					180	225	65	125				95	320	250						100
40-315			125	470	225	250			330		M12		345	280		32	80	35	10	105
50-125		50	100	360	132	160	50	100	260			70	240	190		24	50	27	8	120
50-160					160	180							265	212						90
50-200						200														100
50-250					180	225	65	125				95	320	250						110
50-315			125	470	225	280			330				345	280		32	80	35	10	105
65-125	80	65	100	360	160	180	65	125	260			95	280	212		24	50	27	8	125
65-160						200														100
65-200					180	225							320	250						
65-250					200	250	80	160	330		M16	120	360	280		32	80	35	10	120
65-315	100		125	470	225	280							400	315						105
80-160		80		360	180	225	65	125	260		M12	95	320	250		24	50	27	8	
80-200				470		250			330				345	280		32	80	35	10	150
80-250	125				225	280	80	160			M16	120	400	315						125
80-315					250	315														130
100-200		100			200	280							360	280						155
100-250			140		225								400	315						140
100-315					250	315														
100-400				530	280	355	100	200	360		M20	150	500	400		42	110	45	12	155
125-250	150	125		470	250		80	160	330		M16	120	400	315		32	80	35	10	140
125-315				530	280		100	200	360		M20	150	500	400		42	110	45	12	150
125-400					315	400														160
150-250	200	150	160	470	280									450		32	80	35	10	140
150-315				530									550			42	110	45	12	160
150-400					315	450														165

*** x :** Back pull-out distance required between motor shaft end & pump shaft

Type LDP-X



Pump size	Dimensions (mm)																		
	NW_S/NW_D	Length		Height		Feet & support mounting details												Shaft end	
		a	f_1	h_1	h_2	b	m_1	m_2	m_3	m_4	n_1	n_2	n_3	n_4	w	S_1	S_2	d_1	l_1
150-200	200/150	160	470	280	370	100	200	150	-	-	550	450	-	-	456	M20	-	32	80
200-330	250/200	200	552	325	450	100	250	200	28	50			160	110	392		M12	42	110
200-400			660	370	470	125			45	80	700	575			465			55	
200-500			656	400	560	150					780	630			461				
250-400	300/250	250	670	370	500	125					700	575			475				
250-500			690	400	560	150	300	250		80	780	630			470			60	140
300-360	350/300														495			55	110

Notes

Notes

Notes

DMP® PUMPS

DRAKOS·POLEMIS

Engineered Pumping Technology.

ISO 9001
BUREAU VERITAS
Certification

MEMBER OF Europump

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