

NSP Series Dry Screw Vacuum Pumps

Models: NSP-150, NSP-300, NSP-400, NSP-600,
NSP-800, NSP-1000, NSP-1500, NSP-2500, NSP-3000



Description: Dry Screw Vacuum Pump

Models: NSP-150, NSP-300, NSP-400, NSP-600, NSP-800,
NSP-1000, NSP-1500, NSP-2500, NSP-3000

Power Range: 5 - 75 HP

Ultimate Vacuum Pressure:

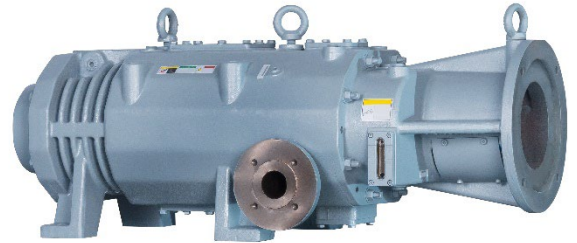
- NSP-150, 300, 1500, 2500, 3000 - 5×10^{-2} torr
- NSP-600, 1000 - 1×10^{-2} torr
- NSP-400, 800 - 7.5×10^{-3} torr

OVERVIEW

NES Company is proud to offer our NSP Series Dry Screw Vacuum Pumps, factory performance tested with a 1-year warranty against manufacturer's defects.

DESCRIPTION

NES Company Inc. introduces our latest line of vacuum pumps, the NSP Series. The NSP dry screw vacuum pump series is able to generate up to 7.5×10^{-3} torr at flow rate up to 1766 CFM. The NSP Series is meticulously machined and carefully crafted for tight tolerances with quality material, resulting in deep vacuum levels for a myriad of applications. The sum of these features makes for a versatile and reliable vacuum pump.



FEATURES

- Easy internal access for **quick maintenance**.
- Oil lubrication within gearbox results in minimal contact between process gas and lubrication, making a **clean process**.
- **Variable pitch screw rotors** create amplified compression effect.
- Internal coating prevents excessive condensation, extending the service life of the product. **Various coatings are available** depending on the application.
- Large number of **available accessories** that improve performance and extend pump life, such as gas ballast kits and inlet purge kits.
 - **1-year factory warranty** against manufacturer's defects.

NOTES

NES Company is proud to offer our NSP Series Dry Screw Vacuum Pump. These new pumps are factory performance tested and include a 1-year warranty against manufacturer's defects.

NES Company Inc. 333 Route 46 West, Building A, Fairfield, NJ 07004

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GENERAL TECHNICAL DATA

Series Name	Flow Rate [CFM]	Motor Power [HP]	Ultimate Vacuum Pressure (Torr)	Rotation Speed [RPM]	Exhaust Method	Cooling Water Flow [GPM]	Cooling Water Connection Size [Inch]
NSP-150	77	5	0.01	3600	Side	1.32-3.96	3/8 NPT
NSP-300	177	10	7.5×10^{-3}	3600	*	2.64-3.96	1/2 NPT
NSP-400	235	15	7.5×10^{-3}	3600	*	2.64-3.96	1/2 NPT
NSP-600	353	20	0.01	3500	Bottom	3.96-5.28	1/2 NPT
NSP-800	412	20	7.5×10^{-3}	3600	*	3.96-5.28	1/2 NPT
NSP-1000	589	25	0.01	3600	Side	5.28-6.60	1/2 NPT
NSP-1500	883	50	0.05	1750	Side	7.93-10.57	1 NPT
NSP-2500	1471	75	0.05	1750	Side	13.21-14.53	1 NPT
NSP-3000	1766	75	0.05	1750	Side	10.57-13.21	1 NPT

**Side and Bottom Configurations are available.*

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Variation Table

Variations	Particulars
Metallurgy	Standard Cast Iron
Discharge Position*	Side Bottom
Coating	PFA PEEK NIFA (Nickel-Plated Teflon)
Elastomer*	Viton Kalrez
Accessories*	Suction Port (304SS) Suction Port (316SS) Suction Port – PFA Coating Vacuum Gauge & Needle Valve Inlet Non-Return Valve (304SS) Inlet Temporary Strainer (304SS) Coupling Base Plate Exhaust Silencer (304SS) Exhaust Silencer (316SS) Jacket-type Exhaust Silencer (304SS) Jacket-type Exhaust Silencer (316SS) Exhaust Silencer – PFA Coating Jacket-type Exhaust Silencer – PFA Coating Inlet Filter Casing (304SS) Inlet Filter Element (200 mesh) Seal Purge Kit Gas Ballast Kit Inlet Purge Kit Solvent Flushing Kit Service Panel for Purge & Flushing

*For accessories, variations in configuration, and pricing inquiries, please contact an NES representative.

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Application table

Applications

Vapor Recovery

Furnaces & Ovens

Steel Degassing

Refrigeration

Chemical Reactions

Membrane Pervaporation

Impregnation

Freeze Drying

Filtration

Evaporation

Drying

Distillation & Fractionation

Degassing

Central Vacuum System

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Exploded View

Assembly drawing 1 - NSP Screw Vacuum Pump

- Bottom exhaust
- Suction side: Double lip seal+Double lip seal
- Exhaust side: Double lip seal+Mechanical seal

75	Locknut - suction side	2	38	Retaining ring	2
74	Stop washer - suction side	2	37	Hexagon Socket Head Bolt - oil seal seat	4
73	Double lip seal - suction side	4	36	Skeleton Oil Seal	1
72	Hexagon socket screw plug - pump body	4	35	Oil seal seat	1
71	Hexagon socket screw plug - end cover	2	34	O ring - oil seal seat	1
70	Hexagon socket screw plug - purge port	2	33	Bushing	1
69	Manual drain valve	2	32	Deep groove ball bearing	1
68	Washer	2	31	Hex nut	8
67	Suction end plate guide	2	30	Flat Washer A	16
66	Drive rotor	1	29	Stud	8
65	Gear expansion sleeve	1	28	Cylindrical pin with female thread	6
64	Inlet filter	1	27	Front cover	1
63	Lifting ring screw	2	26	Hexagon Socket Head Bolt - exhaust end cover	4
62	Hexagon socket screw plug	1	25	Round nut	1
61	Hexagon socket magnetic screw plug	1	24	Stop washer for round nut	1
60	Automatic exhaust valve	1	23	Gear key	1
59	O ring - suction port	1	22	Drive gear	1
58	Driven rotor	1	21	Driven gear	1
57	Suction end bushing	2	20	Suction end cover	1
56	Exhaust end bushing	2	19	O ring - water hole	1
55	Hexagon Socket Head Bolt - sight glass platen	8	18	O ring - pump body	3
54	Sight glass platen	2	17	Pump body	1
53	Oil window glass	2	16	Locknut - exhaust side	2
52	O ring - sight glass window	2	15	Stop washer - exhaust side	2
51	Hex bolt	18	14	Mechanical seal static ring	2
50	Flat Washer C	18	13	Mechanical seal dynamic ring	2
49	End cap upper cover plate	1	12	Adjusting washer - 0.3	2
48	Pump body lower cover plate	1	11	Adjusting washer - 0.1	2
47	Pump body upper cover plate	1	10	Adjusting washer - 1.2	2
46	Pump body upper cover plate-rubber pad	1	9	Hexagon Socket Head Bolt - Bearing Platen	8
45	Pump body lower cover plate-rubber pad	1	8	Bearing Platen	2
44	End cap upper cover plate-rubber pad	1	7	Double-row Angular Contact Ball Bearing	2
43	Hexagon Socket Head Bolt - back cover	8	6	Bearing seat	2
42	Back cover	1	5	Double lip seal - exhaust side	2
41	O ring - back cover	1	4	Hexagon Socket Head Bolt S316	16
40	Hex bolt - suction end cover	8	3	Exhaust end plate guide B	1
39	Cylindrical Roller Bearing	2	2	Exhaust end plate guide A	1
NO	Part Name	Quantity	1	Exhaust end cover - bottom exhaust	1
NO	Part Name	Quantity	NO	Part Name	Quantity

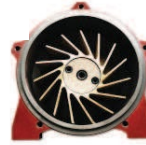
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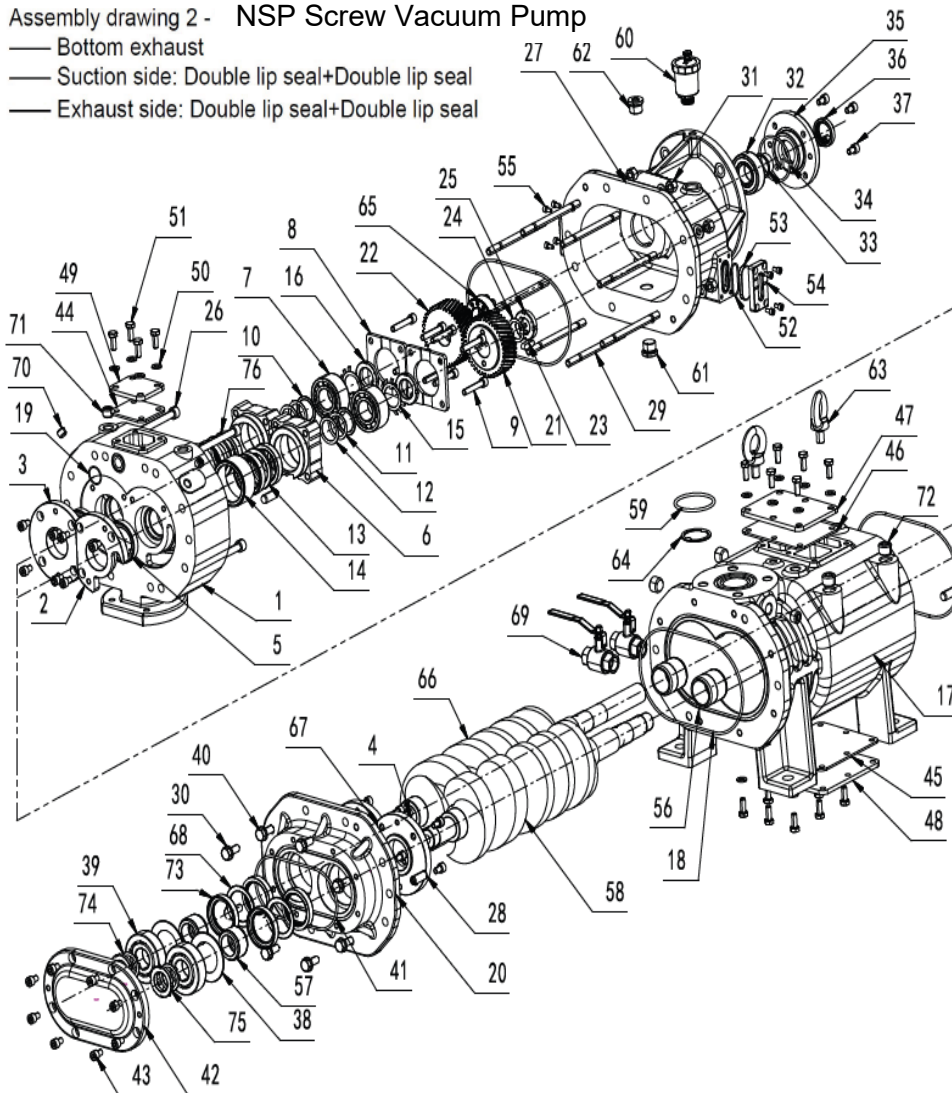
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Assembly drawing 2 - NSP Screw Vacuum Pump

- Bottom exhaust
- Suction side: Double lip seal+Double lip seal
- Exhaust side: Double lip seal+Double lip seal



76	Lip seal - exhaust side	4
75	Locknut - suction side	2
74	Stop washer - suction side	2
73	Double lip seal - suction side	4
72	Hexagon socket screw plug - pump body	4
71	Hexagon socket screw plug - end cover	2
70	Hexagon socket screw plug - purge port	2
69	Manual drain valve	2
68	Washer	2
67	Suction end plate guide	2
66	Drive rotor	1
65	Gear expansion sleeve	1
64	Inlet filter	1
63	Lifting ring screw	2
62	Hexagon socket screw plug	1
61	Hexagon socket magnetic screw plug	1
60	Automatic exhaust valve	1
59	O ring - suction port	1
58	Driven rotor	1
57	Suction end bushing	2
56	Exhaust end bushing	2
55	Hexagon Socket Head Bolt - sight glass platen	8
54	Sight glass platen	2
53	Oil window glass	2
52	O ring - sight glass window	2
51	Hex bolt	18
50	Flat Washer C	18
49	End cap upper cover plate	1
48	Pump body lower cover plate	1
47	Pump body upper cover plate	1
46	Pump body upper cover plate-rubber pad	1
45	Pump body lower cover plate-rubber pad	1
44	End cap upper cover plate-rubber pad	1
43	Hexagon Socket Head Bolt - back cover	8
42	Back cover	1
41	O ring - back cover	1
40	Hex bolt - suction end cover	8
39	Cylindrical Roller Bearing	2
38	Retaining ring	2
37	Hexagon Socket Head Bolt - oil seal seat	4
36	Skeleton Oil Seal	1
35	O seal seat	1
34	O ring - oil seal seat	1
33	Bushing	1
32	Deep groove ball bearing	1
31	Hex nut	8
30	Flat Washer A	16
29	Stud	8
28	Cylindrical pin with female thread	6
27	Front cover	1
26	Hexagon Socket Head Bolt - exhaust end cover	4
25	Round nut	1
24	Stop washer for round nut	1
23	Gear key	1
22	Drive gear	1
21	Driven gear	1
20	Suction end cover	1
19	O ring - water hole	1
18	O ring - pump body	3
17	Pump body	1
16	Locknut - exhaust side	2
15	Stop washer - exhaust side	2
14	Lip seal seat	2
13	Lip seal gasket	2
12	Adjusting washer - 0.3	2
11	Adjusting washer - 0.1	2
10	Adjusting washer - 1.2	2
9	Hexagon Socket Head Bolt - Bearing Platen	8
8	Bearing Platen	2
7	Double-row Angular Contact Ball Bearing	2
6	Bearing seat	2
5	Double lip seal - exhaust side	2
4	Hexagon Socket Head Bolt - S316	16
3	Exhaust end plate guide B	1
2	Exhaust end plate guide A	1
1	Exhaust end cover - bottom exhaust	1
NO.	Part Name	Quantity

39	Cylindrical Roller Bearing	2
38	Retaining ring	2
37	Hexagon Socket Head Bolt - oil seal seat	4
36	Skeleton Oil Seal	1
35	O seal seat	1
34	O ring - oil seal seat	1
33	Bushing	1
32	Deep groove ball bearing	1
31	Hex nut	8
30	Flat Washer A	16
29	Stud	8
28	Cylindrical pin with female thread	6
27	Front cover	1
26	Hexagon Socket Head Bolt - exhaust end cover	4
25	Round nut	1
24	Stop washer for round nut	1
23	Gear key	1
22	Drive gear	1
21	Driven gear	1
20	Suction end cover	1
19	O ring - water hole	1
18	O ring - pump body	3
17	Pump body	1
16	Locknut - exhaust side	2
15	Stop washer - exhaust side	2
14	Lip seal seat	2
13	Lip seal gasket	2
12	Adjusting washer - 0.3	2
11	Adjusting washer - 0.1	2
10	Adjusting washer - 1.2	2
9	Hexagon Socket Head Bolt - Bearing Platen	8
8	Bearing Platen	2
7	Double-row Angular Contact Ball Bearing	2
6	Bearing seat	2
5	Double lip seal - exhaust side	2
4	Hexagon Socket Head Bolt - S316	16
3	Exhaust end plate guide B	1
2	Exhaust end plate guide A	1
1	Exhaust end cover - bottom exhaust	1
NO.	Part Name	Quantity

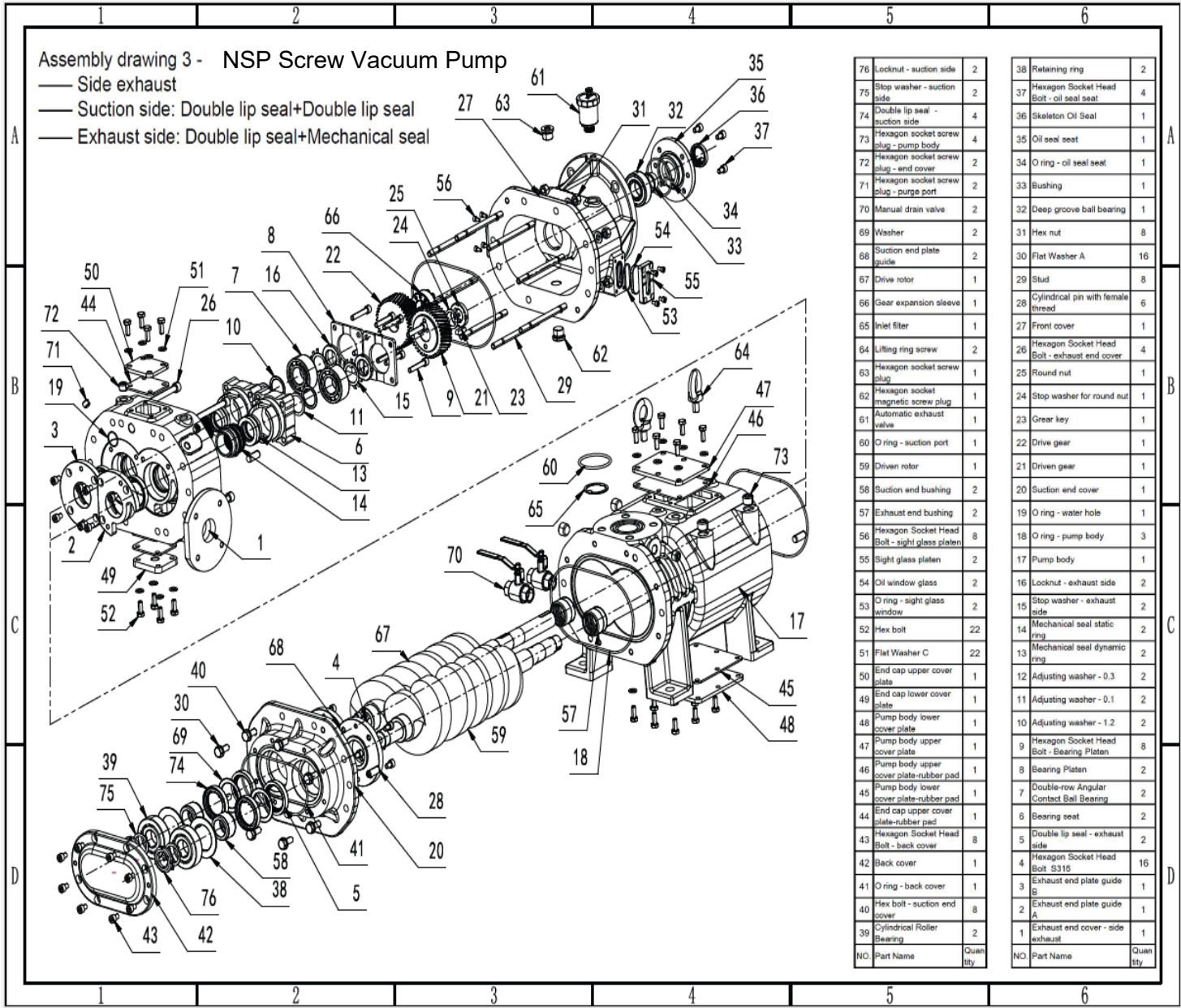
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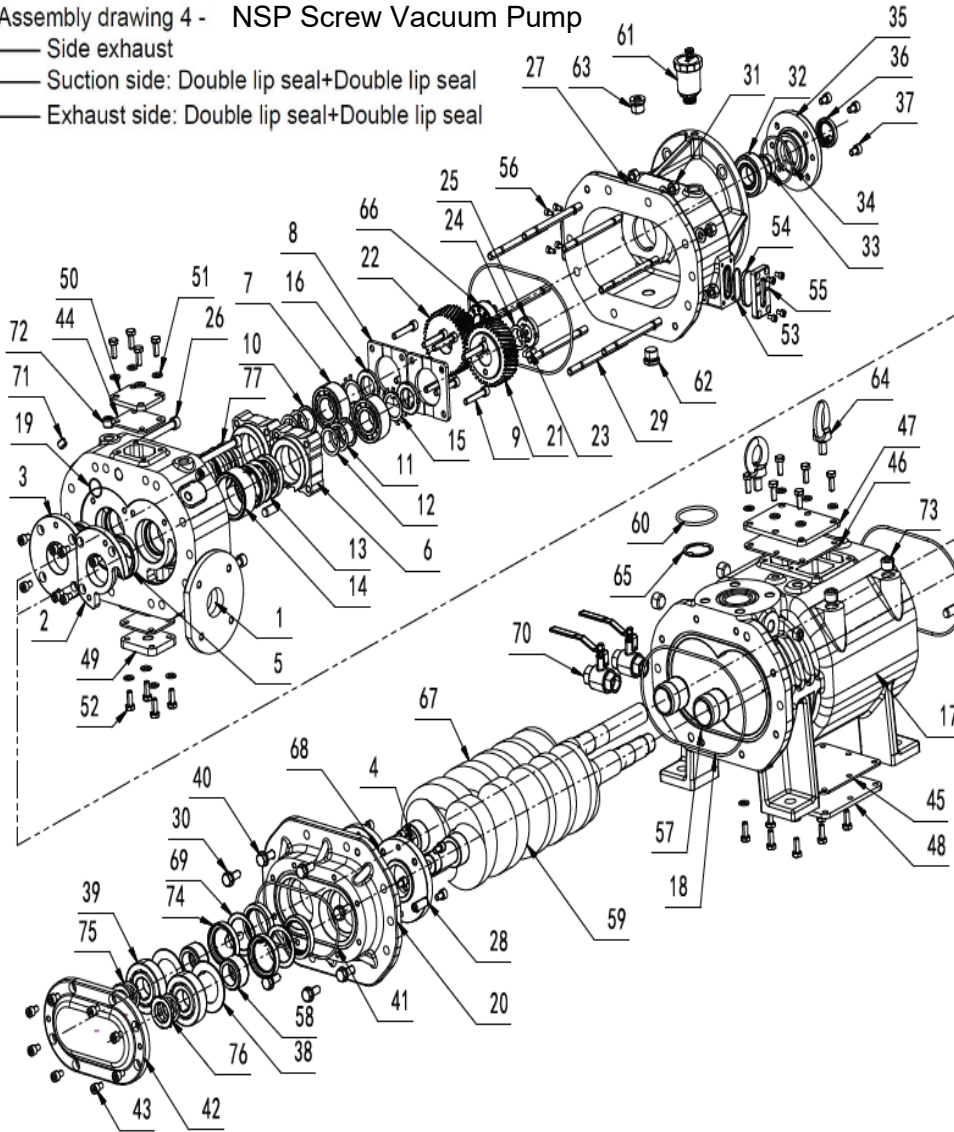
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Assembly drawing 4 - NSP Screw Vacuum Pump

- Side exhaust
- Suction side: Double lip seal+Double lip seal
- Exhaust side: Double lip seal+Double lip seal



77	Lip seal - exhaust side	4
76	Locknut - suction side	2
75	Stop washer - suction side	2
74	Double lip seal - suction side	4
73	Hexagon socket screw plug - pump body	4
72	Hexagon socket screw plug - end cover	2
71	Hexagon socket screw plug - purge port	2
70	Manual drain valve	2
69	Washer	2
68	Suction end plate guide	2
67	Drive rotor	1
66	Gear expansion sleeve	1
65	Inlet filter	1
64	Lifting ring screw	2
63	Hexagon socket screw plug	1
62	Hexagon socket magnetic screw plug	1
61	Automatic exhaust valve	1
60	O ring - suction port	1
59	Driven rotor	1
58	Suction end bushing	2
57	Exhaust end bushing	2
56	Hexagon Socket Head Bolt - sight glass platen	8
55	Sight glass platen	2
54	Oil window glass	2
53	O ring - sight glass window	2
52	Hex bolt	22
51	Flat Washer C	22
50	End cap upper cover plate	1
49	End cap lower cover plate	1
48	Pump body lower cover plate	1
47	Pump body upper cover plate	1
46	Pump body upper cover plate-rubber pad	1
45	Pump body lower cover plate-rubber pad	1
44	End cap upper cover plate-rubber pad	2
43	Hexagon Socket Head Bolt - back cover	8
42	Back cover	1
41	O ring - back cover	1
40	Hex bolt - suction end cover	8
NO.	Part Name	Quantity

39	Cylindrical Roller Bearing	2
38	Retaining ring	2
37	Hexagon Socket Head Bolt - oil seal seat	4
36	Skeleton Oil Seal	1
35	Oil seal seat	1
34	O ring - oil seal seat	1
33	Bushing	1
32	Deep groove ball bearing	1
31	Hex nut	8
30	Flat Washer A	16
29	Stud	8
28	Cylindrical pin with female thread	6
27	Front cover	1
26	Hexagon Socket Head Bolt - exhaust end cover	4
25	Round nut	1
24	Stop washer for round nut	1
23	Grease key	1
22	Drive gear	1
21	Driven gear	1
20	Suction end cover	1
19	O ring - water hole	1
18	O ring - pump body	3
17	Pump body	1
16	Locknut - exhaust side	2
15	Stop washer - exhaust side	2
14	Lip seal seat	2
13	Lip seal gasket	2
12	Adjusting washer - 0.3	2
11	Adjusting washer - 0.1	2
10	Adjusting washer - 1.2	2
9	Hexagon Socket Head Bolt - Bearing Platen	8
8	Bearing Platen	2
7	Double-row Angular Contact Ball Bearing	2
6	Bearing seat	2
5	Double lip seal - exhaust side	2
4	Hexagon Socket Head Bolt S316	16
3	Exhaust end plate guide B	1
2	Exhaust end plate guide A	1
1	Exhaust end cover - side exhaust	1
NO.	Part Name	Quantity

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Bare Shaft Length, Height, Width & Weight

Series Name	Length (Inches)	Height (Inches)	Width (Inches)	Weight (Lbs.)
NSP-150	27	12	14	419
NSP-300	37	13	15	750
NSP-400	39	15	16	993
NSP-600	47	18	42	1059
NSP-800	49	20	21	1323
NSP-1000	46	20	20	1500
NSP-1500	65	21	26	3528
NSP-2500	59	27	27	2977
NSP-3000	73	27	30	4675

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