



LIQUID RING VACUUM PUMPS & COMPRESSOR

NC SERIES

Pumps. Systems. Service. Support. — One Source.

SINGLE-STAGE LIQUID RING VACUUM PUMP & COMPRESSOR

MODELS: NC-2, 3, 4, 5, 6, 7, 9, 10, 11



Drop-in replacement for classic Nash* SC series vacuum pumps and compressors — with directly interchangeable parts.

— FIT	— MATERIALS	— CONFIGURATION	— WARRANTY
Drop-in replacement for classic Nash* SC series; parts and repair kits available to fit Nash* SC Series.	Standard cast iron construction with Teflon packing; optional 304 or 316 stainless steel.	Bare pump, direct drive, or V-belt systems; optional factory-installed mechanical seals.	2-year factory warranty against manufacturer's defects.

Vacuum pump and compressor. One single-cone design for diverse industrial applications.

NES Company is proud to offer our single stage/single cone NC Series liquid ring vacuum pumps. Our NC Series exemplifies a commitment to innovation, reliability, and performance, delivering optimal vacuum solutions for diverse industrial applications.

VACUUM PUMP CAPACITY

70–3,200

CFM · 5–190 HP

COMPRESSOR CAPACITY

110–3,600

CFM · 4–480 HP

MAX VACUUM

28" HgV

Vacuum pump service

MAX PRESSURE

25 PSIG

Compressor service

SPECIFICATION SUMMARY

Type	Single-Stage, Single Cone
Service	Vacuum Pump & Compressor
Models	NC-2, 3, 4, 5, 6, 7, 9, 10, 11
Vacuum Pump Power Range	5–190 HP
Compressor Power Range	4–480 HP
Vacuum Pump Capacity Range	70–3,200 CFM
Compressor Capacity Range	110–3,600 CFM
Max Vacuum	28" HgV
Max Pressure	25 PSIG

DESCRIPTION

NES Company is proud to offer our NC Series single conical Lobe design single-stage liquid ring vacuum pumps. These 7.5 - 150 HP single-stage liquid ring vacuum pumps have been designed to be drop-in replacements for the classic Nash SC series vacuum pumps and compressors with directly interchangeable parts.

FEATURES

- ▶ Drop-in replacement for classic Nash* SC series
- ▶ Standard construction is Cast Iron with Teflon Packing.
- ▶ Optional 304 or 316 Stainless Steel construction.
- ▶ Optional factory-installed mechanical seals
- ▶ Parts and repair kits available to fit Nash* SC Series
- ▶ Available in bare pump, direct drive, or V-belt systems
- ▶ 2-year factory warranty against manufacturer's defects.

NOTES

NES Company is proud to offer the single-stage/single cone NC Series drop-in replacements for classic Nash* SC Series pumps. NES Company NC Series vacuum pumps are factory performance tested and include a 2-year warranty.

FULL TECHNICAL DATA

The following pages cover vacuum pump and compressor technical data, variation and application tables, the material construction parts list, dimensions, exploded views, performance curves, system types, separators, and mechanical seals. **Contact NES** at info@nescompany.com or 800-297-3550 for application support.

Technical Data / Vacuum Pump

Model	Max Vacuum["HgV]	Speed[RPM]	Capacity [CFM]@ 22" HgV	Motor Power [HP]@ 22" HgV	Inlet[in]	Discharge[in]	Seal Water [GPM]0–25" Hg	Seal Water [GPM]25–28" Hg	Seal Water Size [in]	Mounting Hole Dia. [in]	Weight Dry [lbs]Stainless Steel	Weight Dry [lbs]Cast Iron
NC-2	28	1450	130	7.5	3 FL	2 FL	Cl: 1½ / SS: 3	Cl: 3 / SS: 6	1/2 NPT	3/4	265	243
NC-2	28	1750	165	10	3 FL	2 FL	Cl: 3 / SS: 3	Cl: 3 / SS: 6	1/2 NPT	3/4	265	243
NC-2	28	2100	192	15	3 FL	2 FL	Cl: 3 / SS: 3	Cl: 3 / SS: 6	1/2 NPT	3/4	265	243
NC-3	28	980	200	15	4 FL	3 FL	4	8	3/4 NPT	3/4	491	451
NC-3	28	1170	265	15	4 FL	3 FL	4	8	3/4 NPT	3/4	491	451
NC-3	28	1450	330	20	4 FL	3 FL	4	8	3/4 NPT	3/4	491	451
NC-3	28	1600	360	25	4 FL	3 FL	8	8	3/4 NPT	3/4	491	451
NC-4	28	1170	340	20	4 FL	3 FL	5	10	3/4 NPT	3/4	513	469
NC-4	28	1320	380	25	4 FL	3 FL	5	10	3/4 NPT	3/4	513	469
NC-4	28	1450	415	30	4 FL	3 FL	5	10	3/4 NPT	3/4	513	469
NC-5	28	1170	450	25	4 FL	3 FL	5	10	3/4 NPT	3/4	581	535
NC-5	28	1280	490	30	4 FL	3 FL	5	10	3/4 NPT	3/4	581	535
NC-5	28	1450	550	40	4 FL	3 FL	5	10	3/4 NPT	3/4	581	535
NC-6	28	820	540	30	6 FL	4 FL	7	14	1 NPT	7/8	994	915
NC-6	28	980	650	40	6 FL	4 FL	7	14	1 NPT	7/8	994	915
NC-6	28	1170	780	50	6 FL	4 FL	7	14	1 NPT	7/8	994	915
NC-7	28	705	900	50	6 FL	6 FL	12	18	1 NPT	1	1578	1449
NC-7	28	795	1000	60	6 FL	6 FL	12	18	1 NPT	1	1578	1449
NC-7	28	880	1100	65	6 FL	6 FL	12	18	1 NPT	1	1578	1449
NC-7	28	930	1150	75	6 FL	6 FL	12	18	1 NPT	1	1578	1449
NC-9	28	470	900	50	8 FL	6 FL	16	40	1 1/2 NPT	1 1/4	2450	—
NC-9	28	525	1100	50	8 FL	6 FL	16	40	1 1/2 NPT	1 1/4	2450	—
NC-9	28	590	1200	60	8 FL	6 FL	16	40	1 1/2 NPT	1 1/4	2450	—
NC-9	28	640	1350	75	8 FL	6 FL	16	40	1 1/2 NPT	1 1/4	2450	—
NC-9	28	705	1500	100	8 FL	6 FL	16	40	1 1/2 NPT	1 1/4	2450	—
NC-9	28	735	1550	100	8 FL	6 FL	16	40	1 1/2 NPT	1 1/4	2450	—
NC-9	28	780	1620	100	8 FL	6 FL	16	40	1 1/2 NPT	1 1/4	2450	—
NC-10	28	450	1490	75	8 FL	6 FL	20	60	1 1/2 NPT	1 1/4	3528	—
NC-10	28	500	1710	100	8 FL	6 FL	20	60	1 1/2 NPT	1 1/4	3528	—
NC-10	28	550	1900	100	8 FL	6 FL	20	60	1 1/2 NPT	1 1/4	3528	—
NC-10	28	590	2020	100	8 FL	6 FL	20	60	1 1/2 NPT	1 1/4	3528	—
NC-10	28	640	2180	125	8 FL	6 FL	20	60	1 1/2 NPT	1 1/4	3528	—
NC-11	28	360	2000	100	10 FL	8 FL	30	75	2 NPT	1 1/4	6478	—
NC-11	28	400	2250	100	10 FL	8 FL	30	75	2 NPT	1 1/4	6478	—
NC-11	28	450	2650	125	10 FL	8 FL	30	75	2 NPT	1 1/4	6478	—
NC-11	28	500	2990	150	10 FL	8 FL	30	75	2 NPT	1 1/4	6478	—
NC-11	28	530	3180	150	10 FL	8 FL	30	75	2 NPT	1 1/4	6478	—

Technical Data / Compressor

Model	Max Pressure[PSIG]	Speed[RPM]	Capacity [CFM]@ 10 PSIG	Motor Power [HP]@ 10 PSIG	Inlet[in]	Discharge[in]	Seal Water Size*[in]	Weight Dry [lbs]Stainless Steel	Weight Dry [lbs]Cast Iron
NC-2	15	1450	110	10	3 FL	2 FL	1/2 NPT	285	263
NC-2	15	1750	160	12	3 FL	2 FL	1/2 NPT	285	263
NC-2	15	2000	190	16	3 FL	2 FL	1/2 NPT	285	263
NC-2	15	2500	240	24	3 FL	2 FL	1/2 NPT	285	263
NC-3	17	1170	240	20	4 FL	3 FL	3/4 NPT	511	471
NC-3	17	1450	320	28	4 FL	3 FL	3/4 NPT	511	471
NC-3	17	1750	370	38	4 FL	3 FL	3/4 NPT	511	471
NC-4	19	1170	330	25	4 FL	3 FL	3/4 NPT	533	489
NC-4	19	1450	420	35	4 FL	3 FL	3/4 NPT	533	489
NC-4	19	1750	525	55	4 FL	3 FL	3/4 NPT	533	489
NC-5	15	1170	440	35	4 FL	3 FL	3/4 NPT	601	555
NC-5	15	1450	540	50	4 FL	3 FL	3/4 NPT	601	555
NC-5	15	1750	640	75	4 FL	3 FL	3/4 NPT	601	555
NC-6	20	885	560	40	6 FL	4 FL	1 NPT	1014	935
NC-6	20	980	680	50	6 FL	4 FL	1 NPT	1014	935
NC-6	20	1170	800	65	6 FL	4 FL	1 NPT	1014	935
NC-7	20	705	850	60	6 FL	6 FL	1 NPT	1598	1469
NC-7	20	795	975	70	6 FL	6 FL	1 NPT	1598	1469
NC-7	20	880	1100	85	6 FL	6 FL	1 NPT	1598	1469
NC-7	20	980	1210	100	6 FL	6 FL	1 NPT	1598	1469
NC-9	25	590	1200	85	8 FL	6 FL	1 1/2 NPT	2485	—
NC-9	25	640	1320	100	8 FL	6 FL	1 1/2 NPT	2485	—
NC-9	25	705	1500	120	8 FL	6 FL	1 1/2 NPT	2485	—
NC-9	25	735	1580	130	8 FL	6 FL	1 1/2 NPT	2485	—
NC-9	25	780	1670	140	8 FL	6 FL	1 1/2 NPT	2485	—
NC-9	25	830	1790	160	8 FL	6 FL	1 1/2 NPT	2485	—
NC-10	25	450	1410	100	8 FL	6 FL	1-1/2 NPT	3570	—
NC-10	25	500	1610	120	8 FL	6 FL	1-1/2 NPT	3570	—
NC-10	25	550	1810	140	8 FL	6 FL	1-1/2 NPT	3570	—
NC-10	25	590	2000	160	8 FL	6 FL	1-1/2 NPT	3570	—
NC-10	25	640	2195	180	8 FL	6 FL	1-1/2 NPT	3570	—
NC-10	25	705	2400	220	8 FL	6 FL	1-1/2 NPT	3570	—
NC-11	25	375	2150	150	10 FL	8 FL	2 NPT	6528	—
NC-11	25	450	2650	190	10 FL	8 FL	2 NPT	6528	—
NC-11	25	500	3000	240	10 FL	8 FL	2 NPT	6528	—
NC-11	25	590	3600	320	10 FL	8 FL	2 NPT	6528	—

*Seal water flow should be approximately ¼ GPM per 1 HP.

Variation / Application Tables

VARIATION TABLE

Variations	Particulars
Metallurgy	Standard Cast Iron
	Stainless Steel 304
	Stainless Steel 316L
	Duplex Steel
	Bronze
Direction	Clockwise
	Counter-Clockwise Rotation
Purpose	Vacuum Pump
	Compressor
Sealing	Standard Available as Gland Packing
	Available with Single Seal
	Available with Single Cartridge Seal
	Available with Dual Cartridge Seal and Seal Pot
Configuration	Once Through
	Partial Recovery
	Full Sealant Recovery
Other System Configuration	Simplex
	Duplex
	Triplex
	Quadruplex

APPLICATION TABLE

Variation	Applications
High Vacuum	Central Vacuum Systems
	De-aeration
	Drying
	Evaporating
	Autoclaves
	Evaporating
	Priming
	Forming
	Fiber Setting
	Gas Stripping
	Molding
	Power Plants
Water Handling	Container Filling
	Filtering
	Extruder Venting
	Eviscerating
	Foods & Fats

Material Construction / Parts List

PARTS — INDEX 1 THROUGH 120-3

Index No.	Qty	Part Name
*1	10	Packing
*3	Rings	Slinger
†*3-1	2	Spring, tension
*4	2	Shim
*5	AR	Lip seal
*5-1	2	Lip seal
**10	1	Lantern Gland
22	2	Pipe plug
22-1	2	Pipe plug
22-2	10	Pipe plug
23	1	Grease fitting
101	2	Body
101-1	1	Gland Nut
101-2	2	Gland Stud
*101-3	2	Body Gasket
102	1	Head
102-1	1	Gland Nut
102-2	2	Gland Stud
102-4	6	Head Screw
102-5	4	Head Screw
104	1	Floating Bearing End Cone
104-1	8	Cone Screw
*104-3	1	Cone Gasket
108	1	Floating Bearing Bracket

Index No.	Qty	Part Name
108-1	4	Floating Bearing Bracket Screw
109	1	Fixed Bearing Bracket
109-1	4	Fixed Bearing Bracket Screw
110	1	Rotor
111	1	Shaft
111-1	1	Shaft Key
112	2	Gland Assembly
115	1	Floating Bearing Outer Cap
115-1	4	Outer Cap Screw
115-2	2	Outer Cap Nut
*115-3	1	Outer Cap Gasket
116	1	Floating Bearing Inner Cap
*116-3	1	Inner Cap Gasket
117	1	Fixed Bearing Outer Cap
117-1	4	Outer Cap Screw
117-2	4	Outer Cap Nut
117-4	3	Outer Cap Screw
117-5	1	Outer Cap Nameplate
118	1	Fixed Bearing Inner Cap
*119	1	Floating Bearing
*120	1	Fixed Bearing
*120-1	1	Fixed Bearing Locknut
*120-3	2	Fixed Bearing Gasket

AR — As required. *Minimum recommended spares. **When used. Optional; requires 8 packing rings, index No.1. †Used on sizes NC2 and NC3 only.

Dimensions / Keyway & Shaft Data

VACUUM PUMP — LENGTH, HEIGHT, WIDTH, KEYWAY, SHAFT DIAMETER

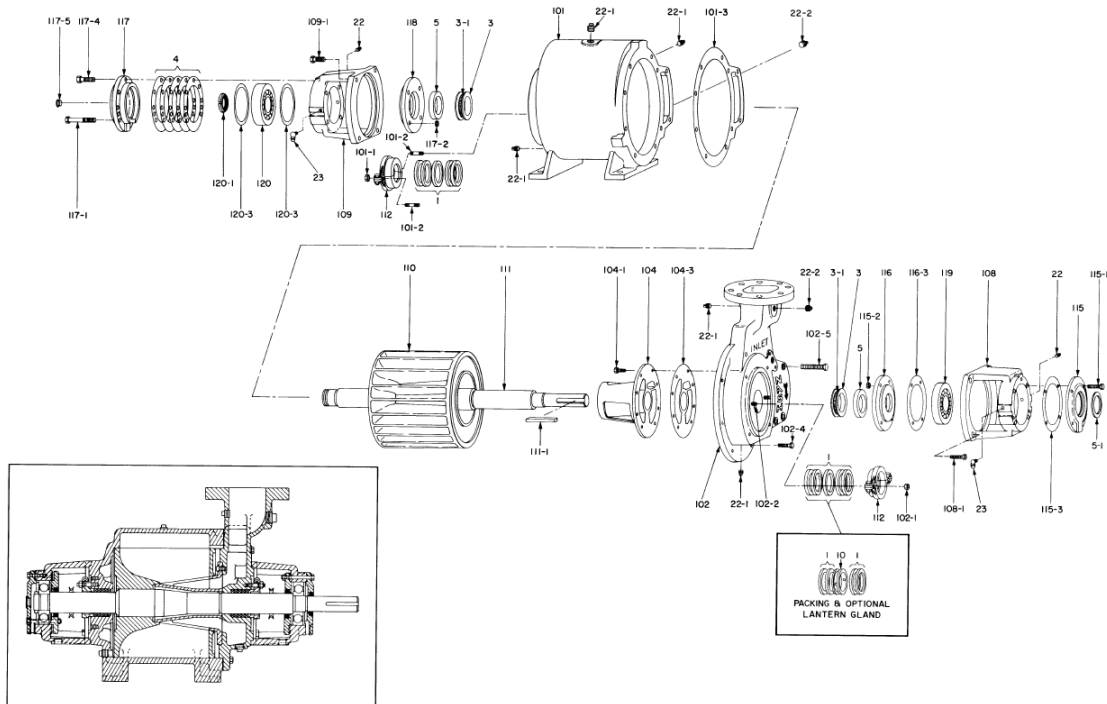
Model	Length [in]	Height [in]	Width [in]	Keyway [in]	Shaft Dia. [in]	Shaft Tolerance [in]
NC2	28.25	16	13.25	5/16 x 5/32	1.3750	+0.0000 / -.0005
NC3	35.38	20.5	17	3/8 x 3/16	1.5000	+0.0000 / -.0005
NC4	35.75	21	18.63	3/8 x 3/16	1.6250	+0.0000 / -.0005
NC5	37.88	21	18.63	3/8 x 3/16	1.6250	+0.0000 / -.0005
NC6	43.25	25.38	22.13	5/8 x 5/16	2.3750	+0.0000 / -.0005
NC7	49.5	31	27	3/4 x 3/8	3.000	+0.000 / -.001
NC9	60.5	34.5	36.5	7/8 x 7/16	3.3750	±.0005
NC10	65.5	39.5	41.5	7/8 x 7/16	3.7500	±.0005
NC11	81	46	48.25	1-1/4 x 5/8	5.0000	±.0005

COMPRESSOR — LENGTH, HEIGHT, WIDTH, KEYWAY, SHAFT DIAMETER

Model	Length [in]	Height [in]	Width [in]	Keyway [in]	Shaft Dia. [in]	Shaft Tolerance [in]
NC2	28.25	16	15	5/16 x 5/32	1.3750	+0.0000 / -.0005
NC3	35.38	20.5	19.25	3/8 x 3/16	1.5000	+0.0000 / -.0005
NC4	35.75	21	21.75	3/8 x 3/16	1.6250	+0.0000 / -.0005
NC5	37.88	21	21.75	3/8 x 3/16	1.6250	+0.0000 / -.0005
NC6	43.25	25.38	24.25	5/8 x 5/16	2.3750	+0.0000 / -.0005
NC7	49.5	31	29	3/4 x 3/8	3.000	+0.000 / -.001
NC9	60.5	34.5	37.13	7/8 x 7/16	3.3750	±.0005
NC10	65.5	39.5	42.25	7/8 x 7/16	3.3750	±.0005
NC11	81	46	48.38	1-1/4 x 5/8	5.0000	±.0005

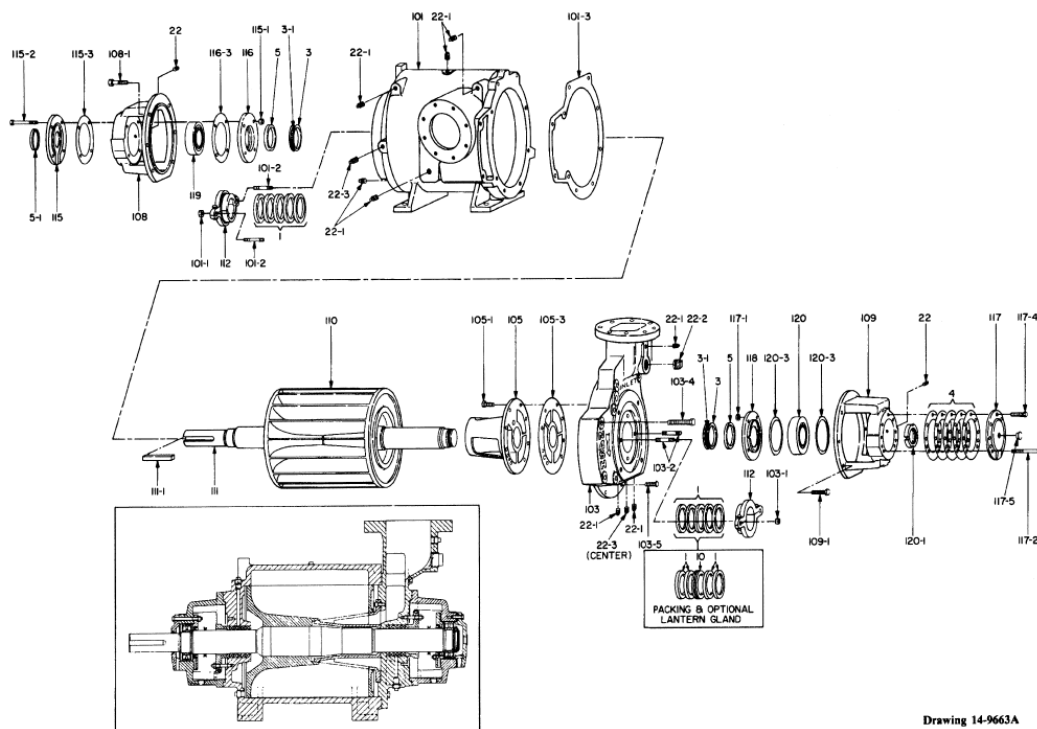
Exploded Views / Reference Drawings

EXPLODED VIEW — NC2, NC3, NC4 & NC5



Drawing 14-8955A

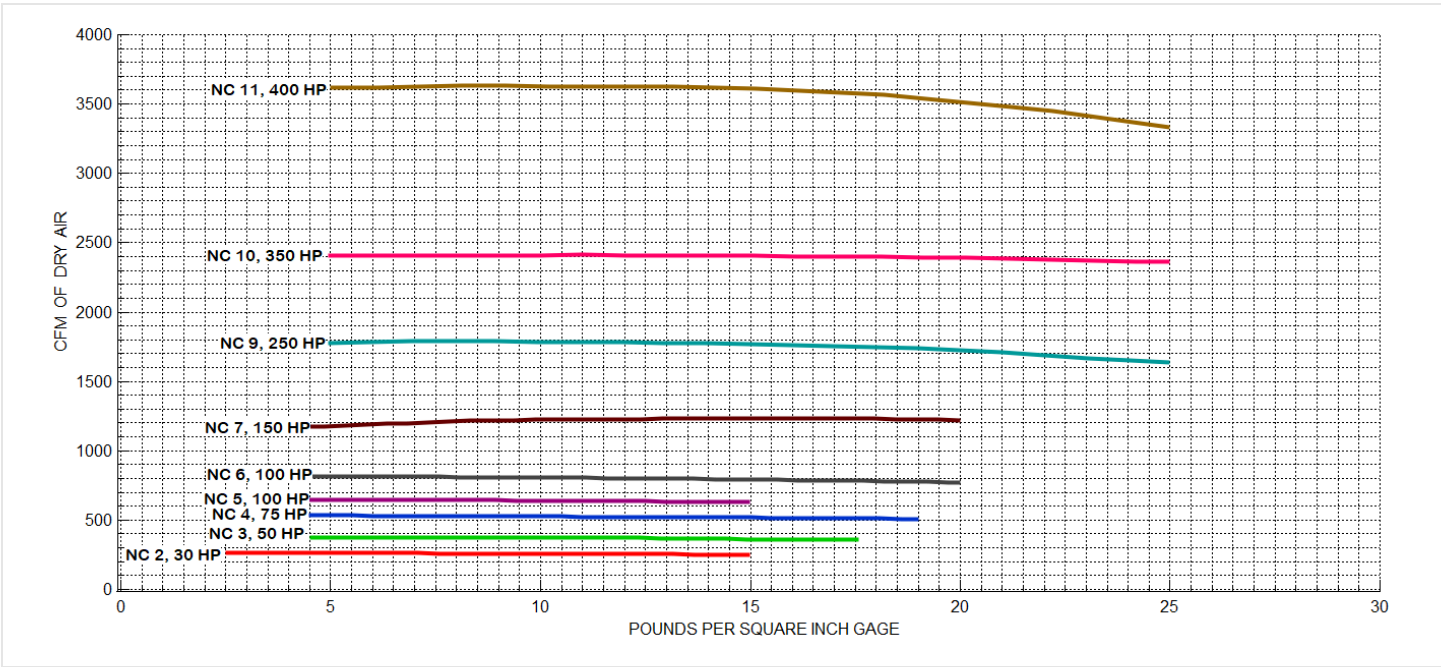
EXPLODED VIEW — NC6 & NC7



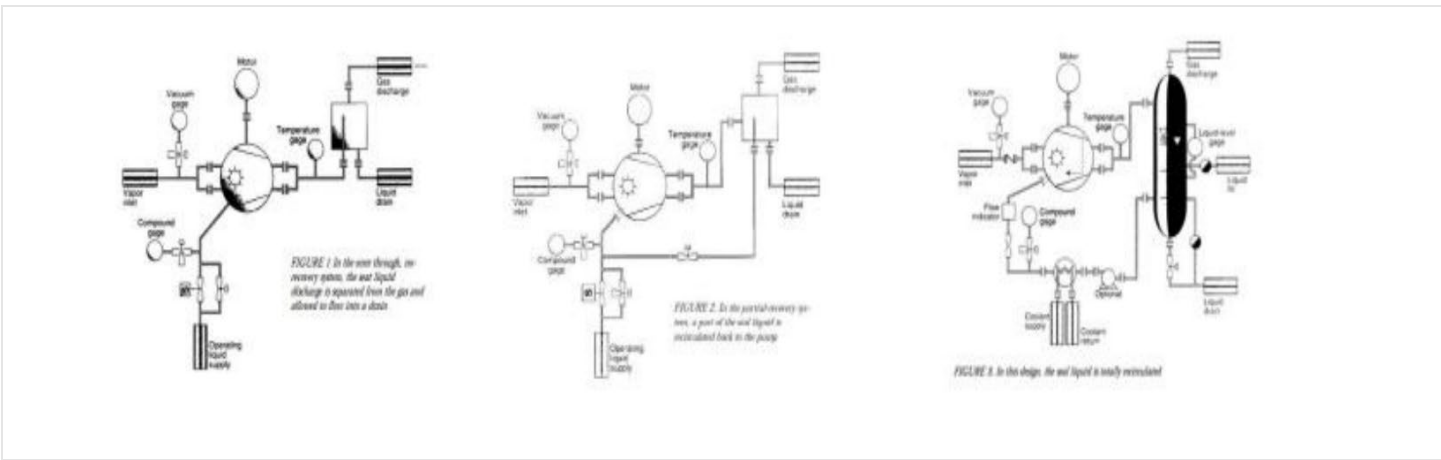
Drawing 14-9663A

Performance Curve / System Types

COMPOSITE CURVE — COMPRESSOR



TYPES OF SYSTEMS

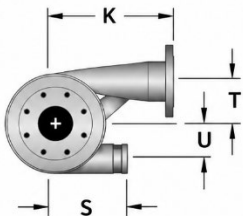


Once Thru Water Cooled	Partial Recovery Water Cooled	Full Recovery Water or Oil Cooled
• Highest pump life	• Only requires minor piping changes to a once thru system, and may save as much as 50% in water consumption.	• Requires either shell & tube heat exchanger or air-cooled heat exchanger
• Continuously washed out	• Slightly increased risk of fouling pump	• Reduced water consumption
• Lowest maintenance	• Slight reduction in pump life	• Increased fouling risk trade-off
• High water consumption	• Slight loss in pump efficiency as seal fluid rises.	• Regular maintenance required for filters, valves, and fluid changes
	• Need to have pump over temp control	• Circulation pump may be required.

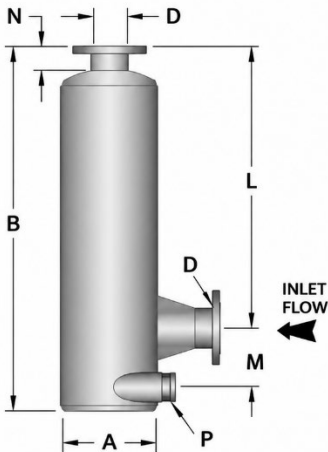
Additional Accessories / Separators

DISCHARGE SEPARATOR — VPSS GRADE II (PIPE SIZES 4" – 16")

TOP VIEW

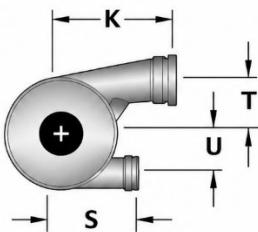


SIDE VIEW

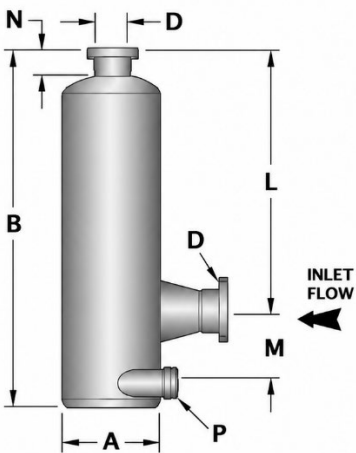


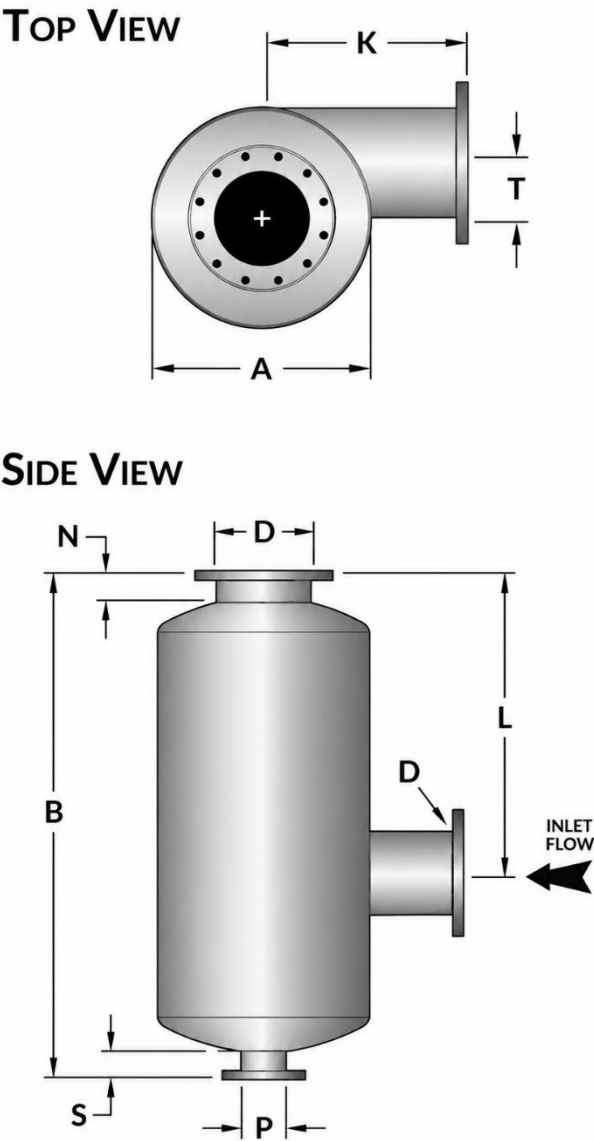
DISCHARGE SEPARATOR — VPSS GRADE II (PIPE SIZES 1" – 3 1/2")

TOP VIEW



SIDE VIEW





SEPARATOR MODEL MATRIX

Model	Inlet Sep.	Discharge Sep.
NC-2	VPSI-3 Grade II	VPSS-2 Grade II
NC-3	VPSI-4 Grade II	VPSS-3 Grade II
NC-4	VPSI-4 Grade II	VPSS-3 Grade II
NC-5	VPSI-4 Grade II	VPSS-3 Grade II
NC-6	VPSI-6 Grade II	VPSS-4 Grade II
NC-7	VPSI-6 Grade II	VPSS-6 Grade II
NC-9	VPSI-8 Grade II	VPSS-6 Grade II
NC-10	VPSI-8 Grade II	VPSS-6 Grade II
NC-11	VPSI-10 Grade II	VPSS-8 Grade II

All separator models above are available in Carbon Steel, Stainless Steel 304, Stainless Steel 316, or Stainless Steel 316L, and in normal or reverse orientation.

Mechanical Seals / Seal Types



MULTI-SPRING COMPONENT OUTSIDE SEAL

For extremely corrosive environments, the Multi-Spring Component Outside Seal single outside seal has no metal parts in contact with sealed liquid. It's ideal for non-metallic pumps.



MULTI-SPRING COMPONENT INSIDE SEAL

The Multi-Spring Component Inside Seal is a simple upgrade for existing OEM seal applications. It's hydraulically balanced and can't fret the pump shaft.



SINGLE CARTRIDGE SEAL

The Single Cartridge Seal is a simple-to-install, unitized cartridge mounted, balanced, multiple spring seal that requires no measuring for installation. It's the basic mechanical seal of choice for ANSI pumps (including enlarged bore seal chambers), vertical pumps, split case pumps, and many more.



DUAL CARTRIDGE SEAL

The Dual Cartridge Seal incorporates liquid shear pumping to remove heat from the seal faces and can be operated with a pressurized barrier or non-pressurized buffer fluid system.

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