

NC Series

Liquid Ring Vacuum Pumps & Compressor

Models: NC2, NC3, NC4, NC5, NC6, NC7, NC9, NC10, NC11



Description: Single-Stage Liquid Ring 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: 70-3200 CFM

Compressor Capacity Range: 110 – 3600 CFM

Max Vacuum: 28" HgV

Max Pressure: 25 PSIG

OVERVIEW

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.

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.

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GENERAL 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 Usage [GPM]		Seal Water Size [in]	Mounting Hole Diameter [in]	Pump Weight Dry [lbs.]	
							0-25" Hg vacuum	25-28" Hg vacuum			Stainless Steel	Cast Iron
NC-2	28	1450	130	7.5	3 FL	2 FL	Cl: 1 ½ SS: 3	Cl: 3 SS: 6	1/2 NPT	3/4	265	243
		1750	165	10			Cl: 3 SS: 3	Cl: 3 SS: 6				
		2100	192	15								
NC-3	28	980	200	15	4 FL	3 FL	4	8	3/4 NPT	3/4	491	451
		1170	265	15								
		1450	330	20			8	8				
		1600	360	25								
NC-4	28	1170	340	20	4 FL	3 FL	5	10	3/4 NPT	3/4	513	469
		1320	380	25								
		1450	415	30								
NC-5	28	1170	450	25	4 FL	3 FL	5	10	3/4 NPT	3/4	581	535
		1280	490	30								
		1450	550	40								
NC-6	28	820	540	30	6 FL	4 FL	7	14	1 NPT	7/8	994	915
		980	650	40								
		1170	780	50								
NC-7	28	705	900	50	6 FL	6 FL	12	18	1 NPT	1	1578	1449
		795	1000	60								
		880	1100	65								
		930	1150	75								
NC-9	28	470	900	50	8 FL	6 FL	16	40	1 1/2 NPT	1 1/4	2450	—
		525	1100	50								
		590	1200	60								
		640	1350	75								
		705	1500	100								
		735	1550	100								
NC-10	28	450	1490	75	8 FL	6 FL	20	60	1 1/2 NPT	1 1/4	3528	—
		500	1710	100								
		550	1900	100								
		590	2020	100								
		640	2180	125								
NC-11	28	360	2000	100	10 FL	8 FL	30	75	2 NPT	1 1/4	6478	—
		400	2250	100								
		450	2650	125								
		500	2990	150								
		530	3180	150								

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Compressor

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

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

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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

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Vacuum pump Length, Height, Breadth, Keyway, Shaft diameter

Model	Length [in.]	Height [in.]	Width [in.]	Keyway [in.]	Shaft diameter [in.]	Shaft Tolerance [in.]
NC2	28.25	16	13.25	5/16 x 5/32	1.3750	+0.0000 -0.0005
NC3	35.38	20.5	17	3/8 x 3/16	1.5000	+0.0000 -0.0005
NC4	35.75	21	18.63	3/8 x 3/16	1.6250	+0.0000
NC5	37.88					-0.0005
NC6	43.25	25.38	22.13	5/8 x 5/16	2.3750	+0.0000 -0.0005
NC7	49.5	31	27	3/4 x 3/8	3.000	+0.000 -0.001
NC9	60.5	34.5	36.5	7/8 x 7/16	3.3750	±0.0005
NC10	65.5	39.5	41.5	7/8 x 7/16	3.7500	±0.0005
NC11	81	46	48.25	1-1/4 x 5/8	5.0000	±0.0005

Compressor Length, Height, Breadth, Keyway, Shaft diameter

Model	Length [in.]	Height [in.]	Width [in.]	Keyway [in.]	Shaft diameter [in.]	Shaft Tolerance [in.]
NC2	28.25	16	15	5/16 x 5/32	1.3750	+0.0000 -0.0005
NC3	35.38	20.5	19.25	3/8 x 3/16	1.5000	+0.0000 -0.0005
NC4	35.75	21	21.75	3/8 x 3/16	1.6250	+0.0000
NC5	37.88					-0.0005
NC6	43.25	25.38	24.25	5/8 x 5/16	2.3750	+0.0000 -0.0005
NC7	49.5	31	29	3/4 x 3/8	3.000	+0.000 -0.001
NC9	60.5	34.5	37.13	7/8 x 7/16	3.3750	±0.0005
NC10	65.5	39.5	42.25	7/8 x 7/16	3.3750	±0.0005
NC11	81	46	48.38	1-1/4 x 5/8	5.0000	±0.0005

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Application table

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

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Material Construction Table

Index No	Qty	Part Name	Index No	Qty	Part Name
*1	10	Packing	108 – 1	4	Floating Bearing Bracket
*3	Rings	Slinger	109	1	Screw
†*3 – 1	2	Spring, tension	109 – 1	4	Fixed Bearing Bracket
*4	2	Shim	110	1	Fixed Bearing Bracket Screw
*5	AR	Lip seal	111	1	Rotor
*5 – 1	2	Lip seal	111 – 1	1	Shaft
**10	1	Lantern Gland	112	2	Shaft Key
22	2	Pipe plug	115	1	Gland Assembly
22 – 1	2	Pipe plug	115 – 1	4	Floating Bearing Outer Cap
22 – 2	10	Pipe plug	115 – 2	2	Outer Cap Screw
23	1	Grease fitting	*115 -3	1	Outer Cap Nut
101	2	Body	116	1	Outer Cap Gasket
101 – 1	1	Gland Nut	*116 – 3	1	Floating Bearing Inner Cap
101 – 1	2	Gland Stud	117	1	Inner Cap Gasket
101 – 2	2	Body Gasket	117 – 1	4	Fixed Bearing Outer Cap
*101 – 3	1	Head	117 – 2	4	Outer Cap Screw
102	1	Gland Nut	117 – 4	3	Outer Cap Nut
102 – 1	2	Gland Stud	117 – 5	1	Outer Cap Screw
102 – 2	2	Head Screw	118	1	Outer Cap Nameplate
102 – 4	6	Head Screw	*119	1	Fixed Bearing Inner Cap
102 – 5	4	Floating Bearing End	*120	1	Floating Bearing
104	1	Cone	*120 – 1	1	Fixed Bearing
104 – 1	8	Cone Screw	*120 - 3	2	Fixed Bearing Locknut
*104 – 3	1	Cone Gasket			Fixed Bearing Gasket
108	1	Floating Bearing Bracket			

AR – As required.

*Minimum recommended spares.

**when used. Optional; requires 8 packing rings, index No.1

†Used on sizes NC2 and NC3 only.

The NES COMPANY logo features a stylized red and black circular emblem on the left, resembling a camera lens or a stylized 'N'. To its right, the words 'NES' and 'COMPANY' are stacked in a bold, red, sans-serif font. 'NES' is significantly larger than 'COMPANY'.

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NC10, NC11

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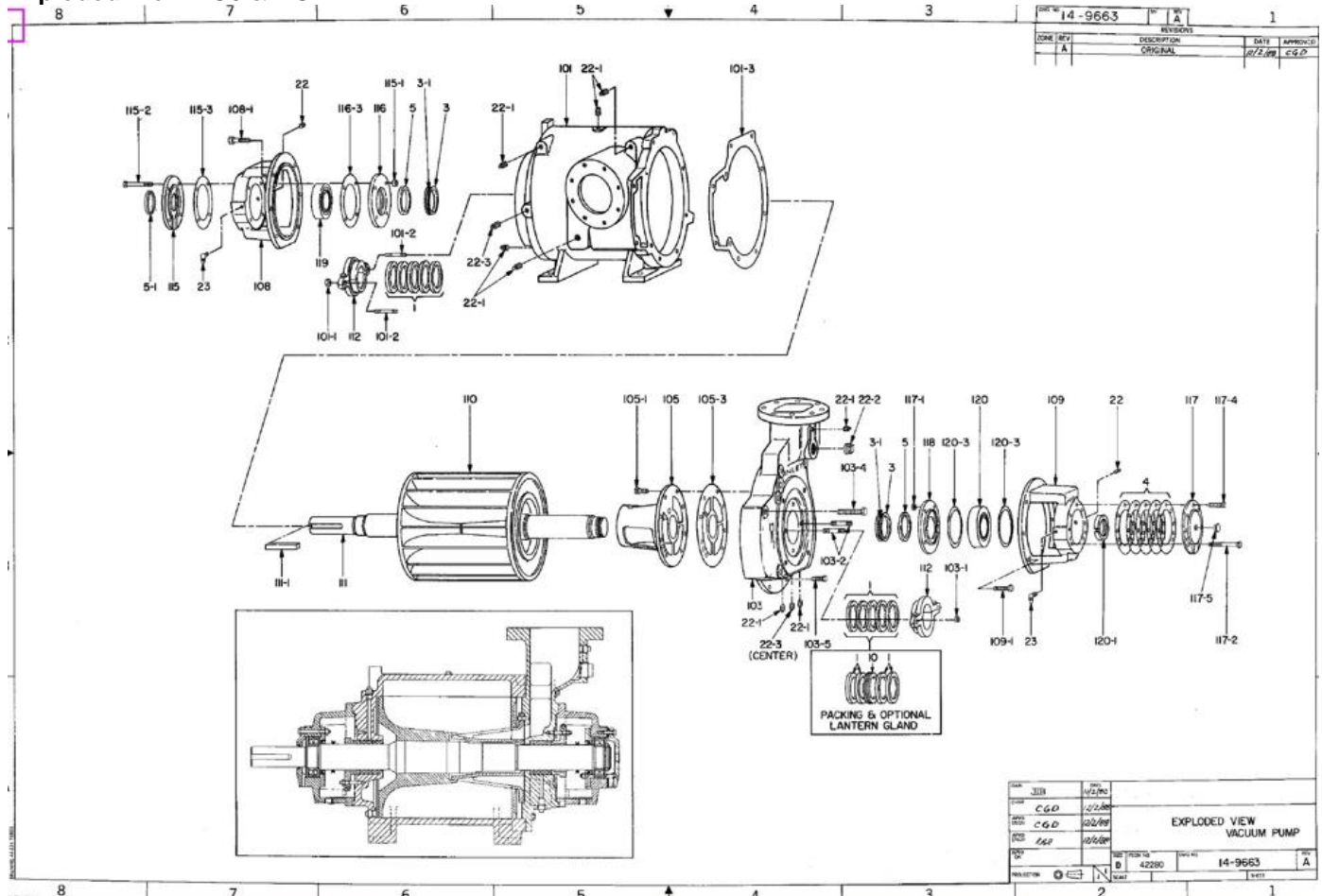
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Exploded View NC6 & NC7



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Exploded view diagram of a vacuum pump assembly. The diagram shows the main pump body (101) with various seals and gaskets (101-1, 101-2, 101-3, 101-4). The impeller (110) is shown on the left, and the motor (117) is on the right. Various other components like the pump head (108), pump housing (109), and various seals and gaskets (105-1, 105-2, 105-3, 105-4, 105-5, 105-6, 105-7, 105-8, 105-9, 105-10, 105-11, 105-12, 105-13, 105-14, 105-15, 105-16, 105-17, 105-18, 105-19, 105-20, 105-21, 105-22, 105-23, 105-24, 105-25, 105-26, 105-27, 105-28, 105-29, 105-30, 105-31, 105-32, 105-33, 105-34, 105-35, 105-36, 105-37, 105-38, 105-39, 105-40, 105-41, 105-42, 105-43, 105-44, 105-45, 105-46, 105-47, 105-48, 105-49, 105-50, 105-51, 105-52, 105-53, 105-54, 105-55, 105-56, 105-57, 105-58, 105-59, 105-60, 105-61, 105-62, 105-63, 105-64, 105-65, 105-66, 105-67, 105-68, 105-69, 105-70, 105-71, 105-72, 105-73, 105-74, 105-75, 105-76, 105-77, 105-78, 105-79, 105-80, 105-81, 105-82, 105-83, 105-84, 105-85, 105-86, 105-87, 105-88, 105-89, 105-90, 105-91, 105-92, 105-93, 105-94, 105-95, 105-96, 105-97, 105-98, 105-99, 105-100, 105-101, 105-102, 105-103, 105-104, 105-105, 105-106, 105-107, 105-108, 105-109, 105-110, 105-111, 105-112, 105-113, 105-114, 105-115, 105-116, 105-117, 105-118, 105-119, 105-120, 105-121, 105-122, 105-123, 105-124, 105-125, 105-126, 105-127, 105-128, 105-129, 105-130, 105-131, 105-132, 105-133, 105-134, 105-135, 105-136, 105-137, 105-138, 105-139, 105-140, 105-141, 105-142, 105-143, 105-144, 105-145, 105-146, 105-147, 105-148, 105-149, 105-150, 105-151, 105-152, 105-153, 105-154, 105-155, 105-156, 105-157, 105-158, 105-159, 105-160, 105-161, 105-162, 105-163, 105-164, 105-165, 105-166, 105-167, 105-168, 105-169, 105-170, 105-171, 105-172, 105-173, 105-174, 105-175, 105-176, 105-177, 105-178, 105-179, 105-180, 105-181, 105-182, 105-183, 105-184, 105-185, 105-186, 105-187, 105-188, 105-189, 105-190, 105-191, 105-192, 105-193, 105-194, 105-195, 105-196, 105-197, 105-198, 105-199, 105-200, 105-201, 105-202, 105-203, 105-204, 105-205, 105-206, 105-207, 105-208, 105-209, 105-210, 105-211, 105-212, 105-213, 105-214, 105-215, 105-216, 105-217, 105-218, 105-219, 105-220, 105-221, 105-222, 105-223, 105-224, 105-225, 105-226, 105-227, 105-228, 105-229, 105-230, 105-231, 105-232, 105-233, 105-234, 105-235, 105-236, 105-237, 105-238, 105-239, 105-240, 105-241, 105-242, 105-243, 105-244, 105-245, 105-246, 105-247, 105-248, 105-249, 105-250, 105-251, 105-252, 105-253, 105-254, 105-255, 105-256, 105-257, 105-258, 105-259, 105-260, 105-261, 105-262, 105-263, 105-264, 105-265, 105-266, 105-267, 105-268, 105-269, 105-270, 105-271, 105-272, 105-273, 105-274, 105-275, 105-276, 105-277, 105-278, 105-279, 105-280, 105-281, 105-282, 105-283, 105-284, 105-285, 105-286, 105-287, 105-288, 105-289, 105-290, 105-291, 105-292, 105-293, 105-294, 105-295, 105-296, 105-297, 105-298, 105-299, 105-300, 105-301, 105-302, 105-303, 105-304, 105-305, 105-306, 105-307, 105-308, 105-309, 105-310, 105-311, 105-312, 105-313, 105-314, 105-315, 105-316, 105-317, 105-318, 105-319, 105-320, 105-321, 105-322, 105-323, 105-324, 105-325, 105-326, 105-327, 105-328, 105-329, 105-330, 105-331, 105-332, 105-333, 105-334, 105-335, 105-336, 105-337, 105-338, 105-339, 105-340, 105-341, 105-342, 105-343, 105-344, 105-345, 105-346, 105-347, 105-348, 105-349, 105-350, 105-351, 105-352, 105-353, 105-354, 105-355, 105-356, 105-357, 105-358, 105-359, 105-360, 105-361, 105-362, 105-363, 105-364, 105-365, 105-366, 105-367, 105-368, 105-369, 105-370, 105-371, 105-372, 105-373, 105-374, 105-375, 105-376, 105-377, 105-378, 105-379, 105-380, 105-381, 105-382, 105-383, 105-384, 105-385, 105-386, 105-387, 105-388, 105-389, 105-390, 105-391, 105-392, 105-393, 105-394, 105-395, 105-396, 105-397, 105-398, 105-399, 105-400, 105-401, 105-402, 105-403, 105-404, 105-405, 105-406, 105-407, 105-408, 105-409, 105-410, 105-411, 105-412, 105-413, 105-414, 105-415, 105-416, 105-417, 105-418, 105-419, 105-420, 105-421, 105-422, 105-423, 105-424, 105-425, 105-426, 105-427, 105-428, 105-429, 105-430, 105-431, 105-432, 105-433, 105-434, 105-435, 105-436, 105-437, 105-438, 105-439, 105-440, 105-441, 105-442, 105-443, 105-444, 105-445, 105-446, 105-447, 105-448, 105-449, 105-450, 10

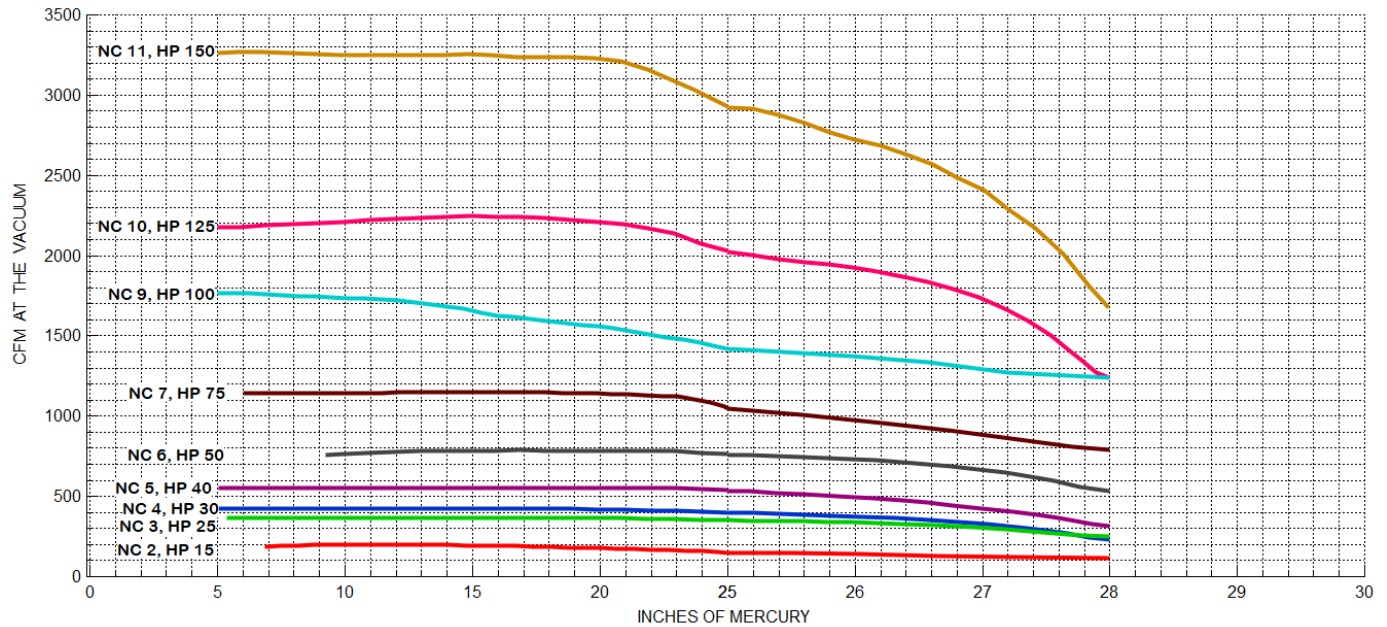
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Composite Curve Vacuum Pump



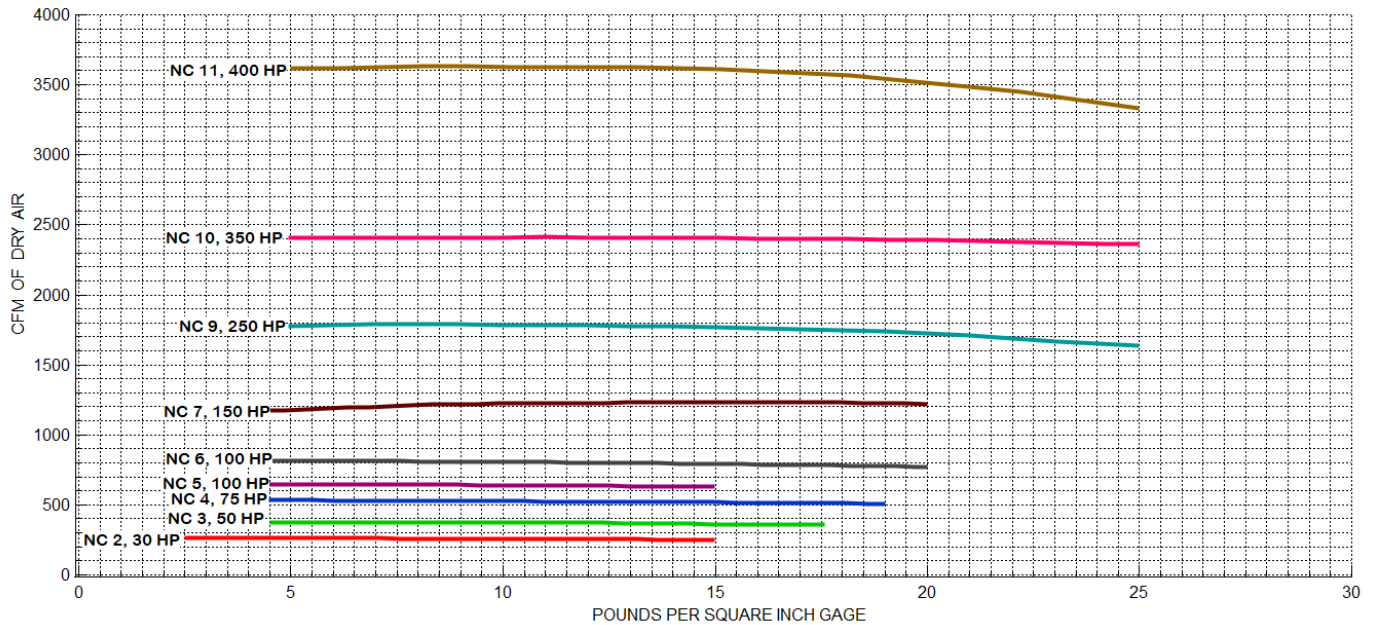
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Composite Curve Compressor



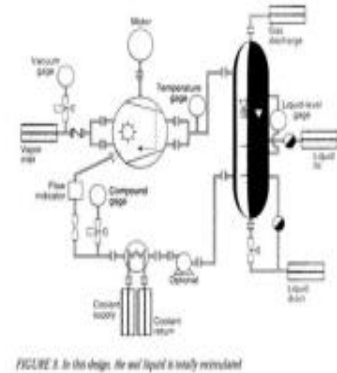
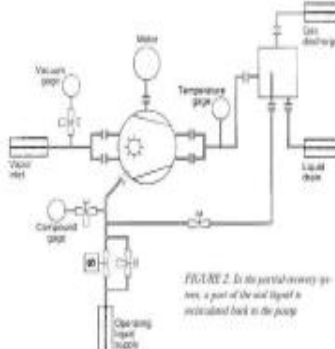
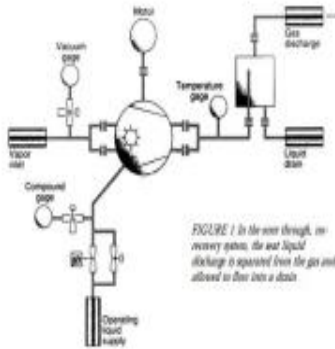
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Types of systems



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.	Requires either shell & tube heat exchanger or air-cooled heat exchanger
Continuously washed out	and may save as much as 50% in water consumption.	Reduced water consumption
Lowest maintenance	Slightly increased risk of fouling pump	Increased fouling risk trade-off
High water consumption	Slight reduction in pump life	Regular maintenance required for filters, valves, and fluid changes
	Slight loss in pump efficiency as seal fluid rises.	Circulation pump may be required.
	Need to have pump over temp control	

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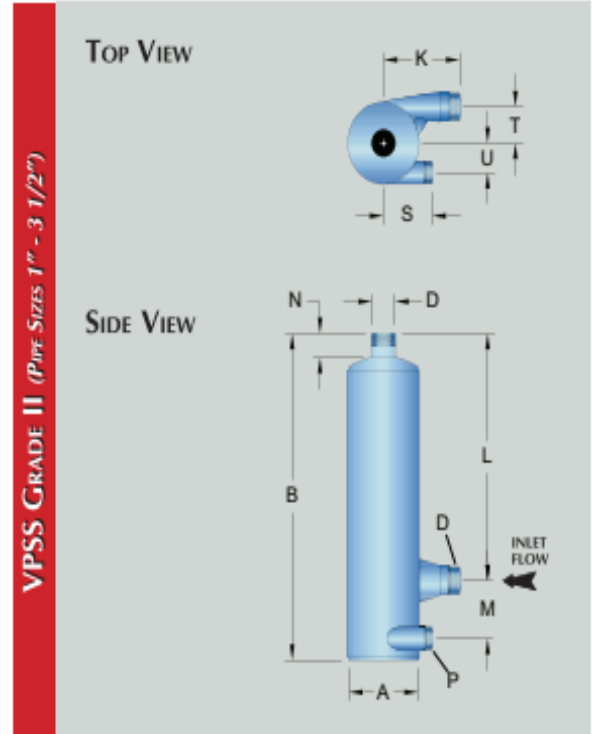
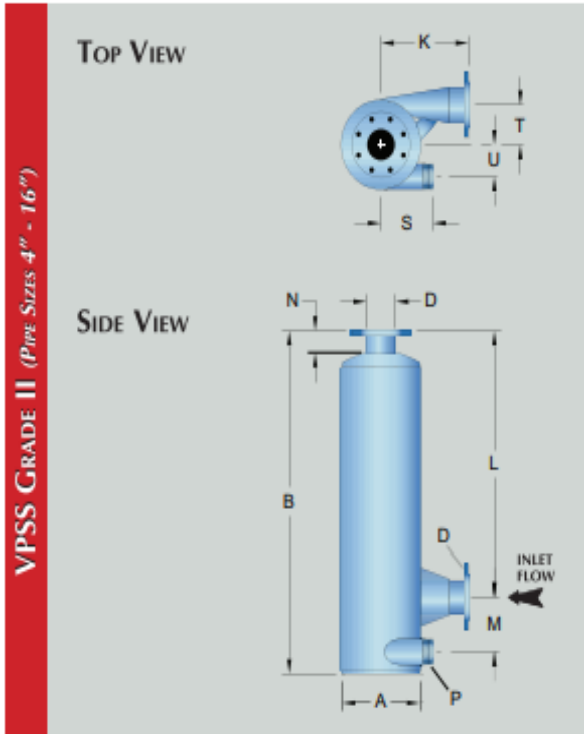
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1. Additional accessories.

Discharge separator:



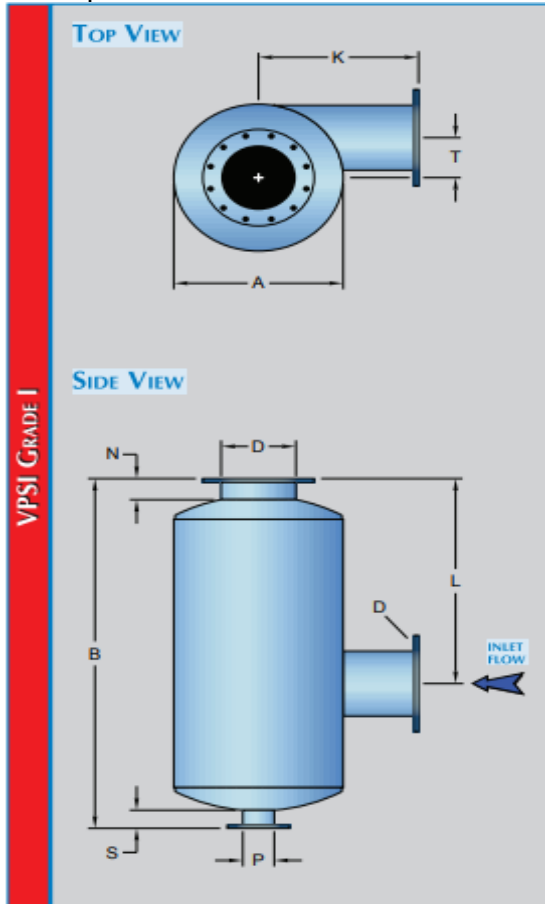
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Inlet separator



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Name of the model of vacuum pump/compressor	Inlet separator model No	Discharge separator model No	Metallurgy	Orientation
NC-2	VPSI-3 Grade II	VPSS-2 Grade II	Carbon steel, stainless 304, stainless steel 316, stainless steel 316 L	Available normal and reverse orientation
NC-3	VPSI-4 Grade II	VPSS-3 Grade II	Carbon steel, stainless 304, stainless steel 316, stainless steel 316 L	Available normal and reverse orientation
NC-4	VPSI-4 Grade II	VPSS-3 Grade II	Carbon steel, stainless 304, stainless steel 316, stainless steel 316 L	Available normal and reverse orientation
NC-5	VPSI-4 Grade II	VPSS-3 Grade II	Carbon steel, stainless 304, stainless steel 316, stainless steel 316 L	Available normal and reverse orientation
NC-6	VPSI-6 Grade II	VPSS-4 Grade II	Carbon steel, stainless 304, stainless steel 316, stainless steel 316 L	Available normal and reverse orientation
NC-7	VPSI-6 Grade II	VPSS-6 Grade II	Carbon steel, stainless 304, stainless steel 316, stainless steel 316 L	Available normal and reverse orientation
NC-9	VPSI-8 Grade II	VPSS-6 Grade II	Carbon steel, stainless 304, stainless steel 316, stainless steel 316 L	Available normal and reverse orientation
NC-10	VPSI-8 Grade II	VPSS-6 Grade II	Carbon steel, stainless 304, stainless steel 316, stainless steel 316 L	Available normal and reverse orientation
NC-11	VPSI-10 Grade II	VPSS-8 Grade II	Carbon steel, stainless 304, stainless steel 316, stainless steel 316 L	Available normal and reverse orientation

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2.Type of mechanical seals



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.

Fig. Multi-Spring Component Outside Seal

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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.

Fig. Multi-Spring Component Inside Seal

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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

Fig. Single Cartridge Seal

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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.

Fig. Dual Cartridge Seal