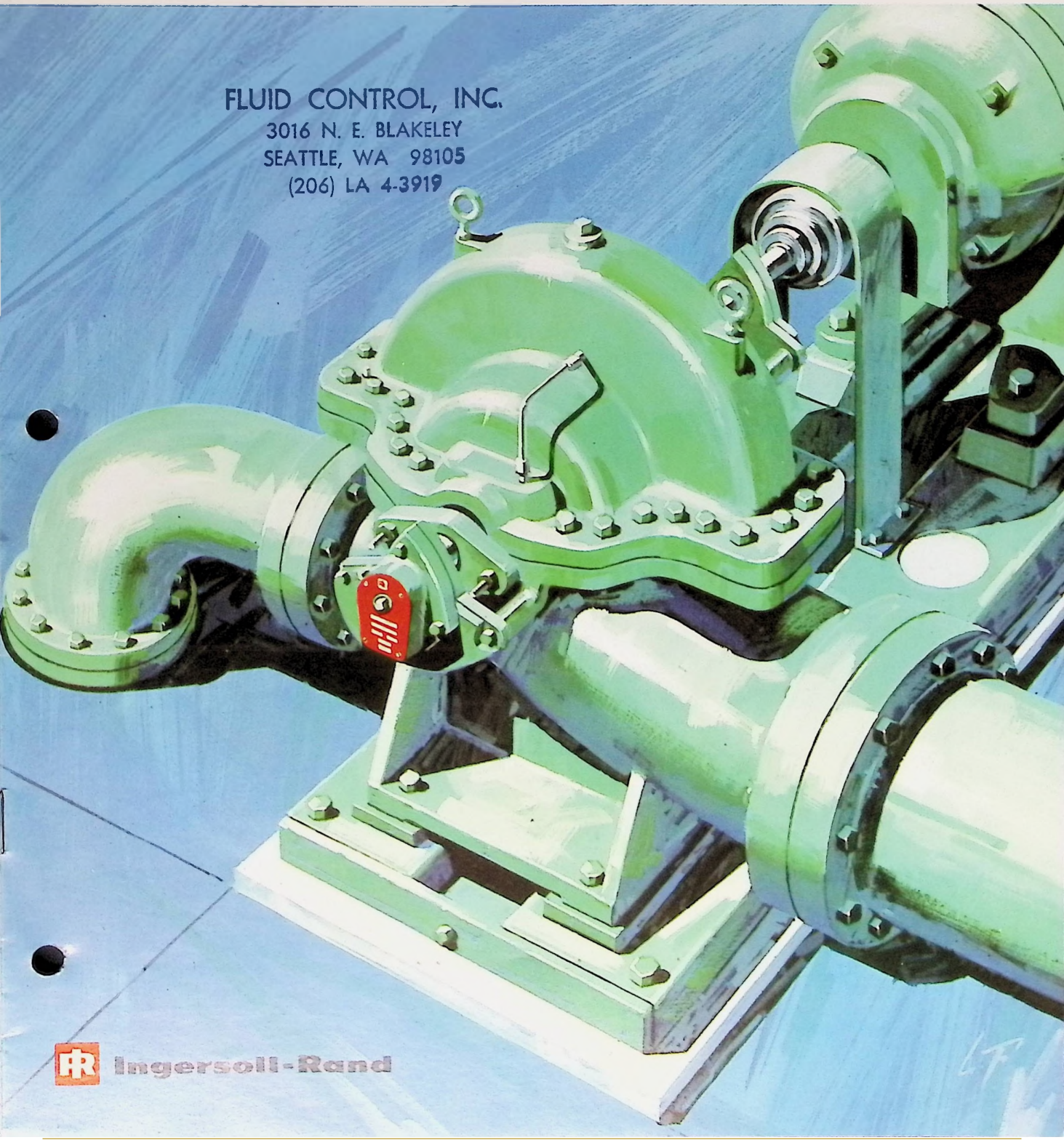
Centurion®

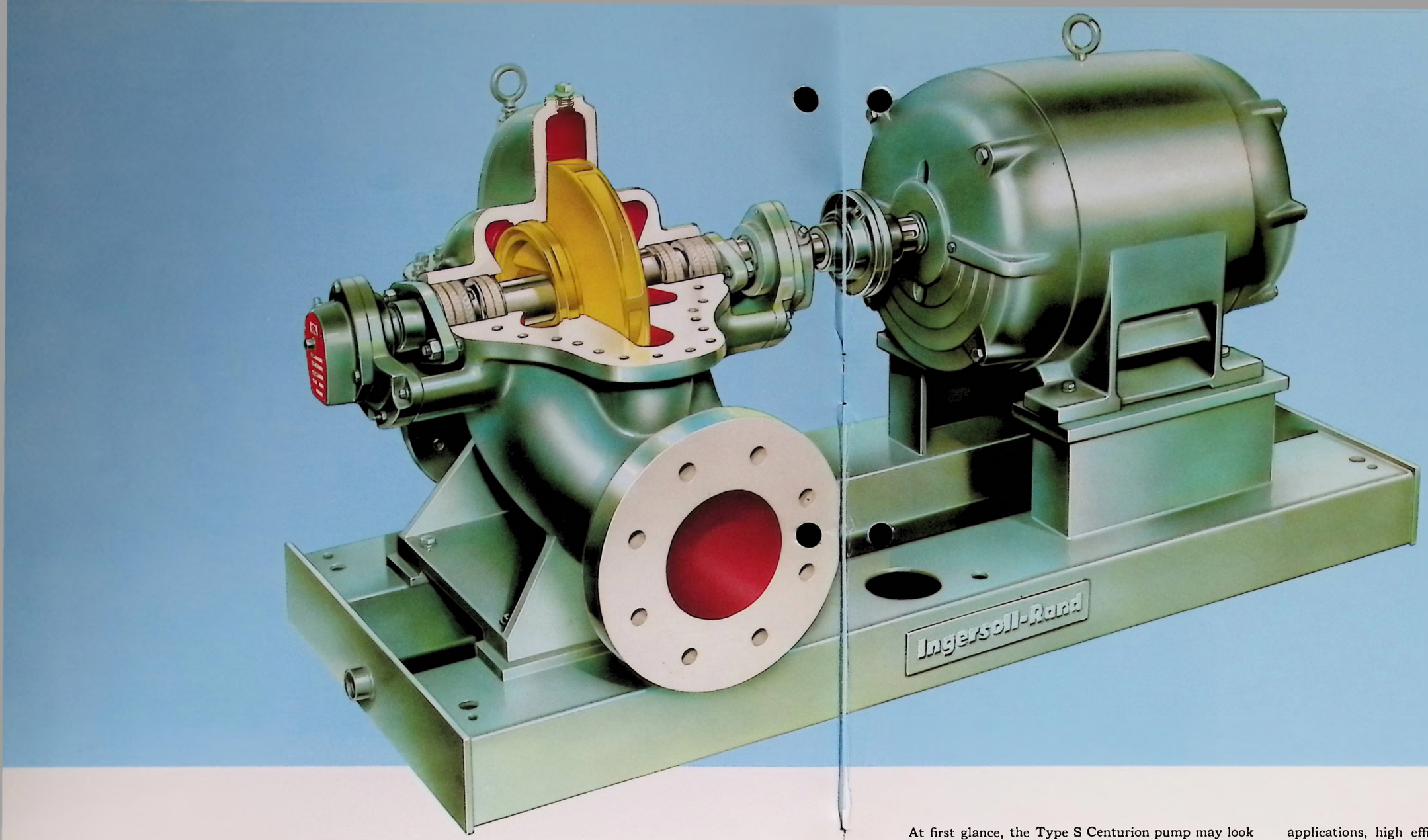
TYPE S HORIZONTAL SPLIT-CASE CENTRIFUGAL PUMPS

FLUID CONTROL, INC.
3016 N. E. BLAKELEY
SEATTLE, WA 98105
(206) LA 4-3919



Ingersoll-Rand

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The Centurion . . .

it may look like other pumps . . . but it isn't

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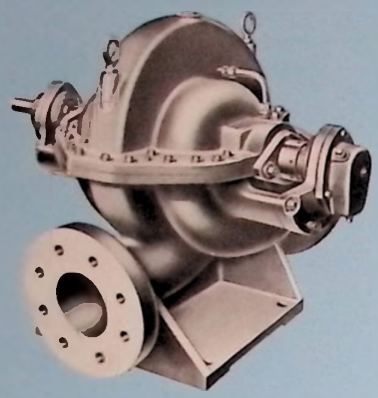
At first glance, the Type S Centurion pump may look like any other horizontal split case pump. However, a close look inside will show how special attention devoted to design of casing, shaft, shaft sleeves, bearings, bearing supports and other parts makes Centurion pumps different . . . a leader among pumps. These differences mean longer life of all parts, less downtime, lower maintenance and high efficiency in a pump you can depend on.

Our designers studied the many service requirements of modern general service pumps; higher operating pressures for such jobs as elevating liquids in high rise buildings, dependability for continuous operation in process applications, high efficiency for economical operation, low attendance and maintenance on any service. They drew on Cameron Pump Division's more than 100 years experience in the design and manufacture of hydraulic pumping equipment to develop a pump . . . the Centurion . . . rugged, dependable, efficient . . . which meets all requirements. The resulting extra-value features of Centurion pumps are presented in the following pages.

There are more than 20 sizes of Centurion pumps, blanketing the capacity range up to 7000 gpm, heads to 500 feet as shown on pages 6 to 9. Materials to handle a wide variety of liquids are available as indicated on page 14.

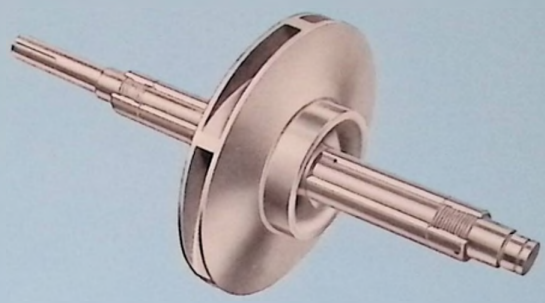
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Only the Centurion



1 Casings are designed for 250 psig working pressure allowing you to use this standard pump for many applications previously requiring special heavy casings.

Hydrostatic test of each casing to 375 psig is standard and assures safe operation at high pressures.



2 Large diameter shafts with minimum bearing span keep shaft deflections low. As a result, packing wear is low, bearing loads are minimized, running fits stay true and maintenance is kept to a minimum.



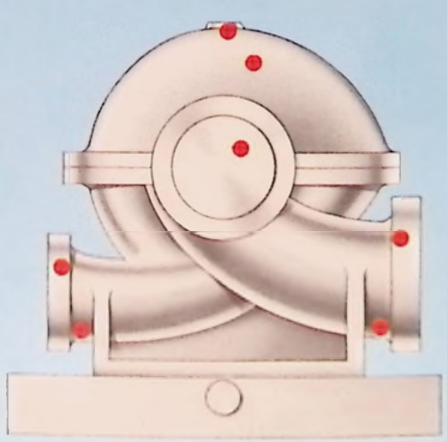
5 Renewable casing rings on all Centurion pumps take casing wear, permit low cost replacement at design clearances.



6 Impeller rings can be supplied with a new pump or added later.



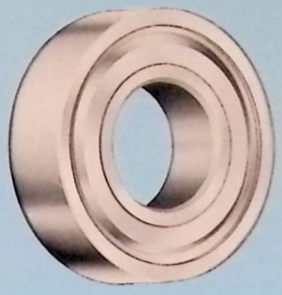
9 Stuffing box bushings protect casing from wear and are easy to replace.



10 All vent and gage connections are drilled, tapped and plugged at the factory, ready for any piping arrangements you require.

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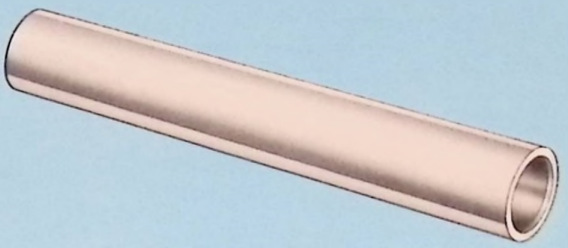
gives you these outstanding features



3 Pre-lubricated grease bearings are selected in sizes to give long life under the toughest conditions of radial load. Oil lubricated bearings are optional at no extra cost.



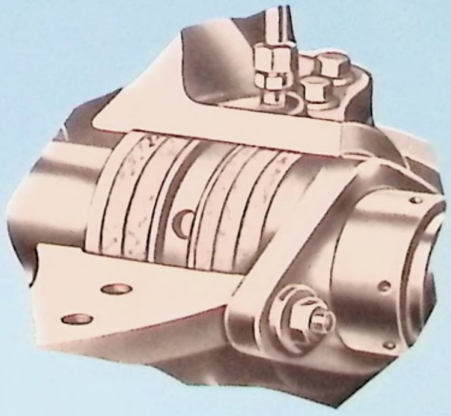
4 Bearing housings are flanged and doweled for easy rotor removal and accurate rotor alignment on reassembly.



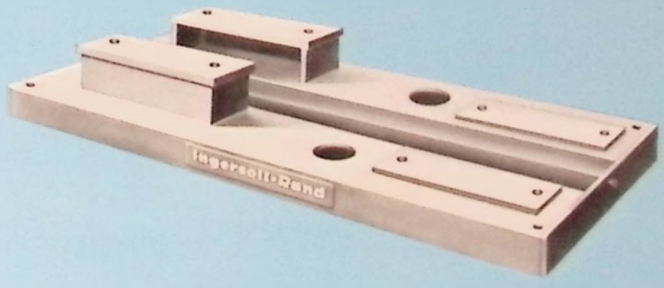
7 Tubular shaft sleeves are keyed to the shaft, protecting the shaft from wear and corrosion. O-ring seals prevent leakage under the sleeves.



8 Shaft sleeve removal is easy because sleeves are end clamped by threaded sleeve nuts located outside the stuffing box.



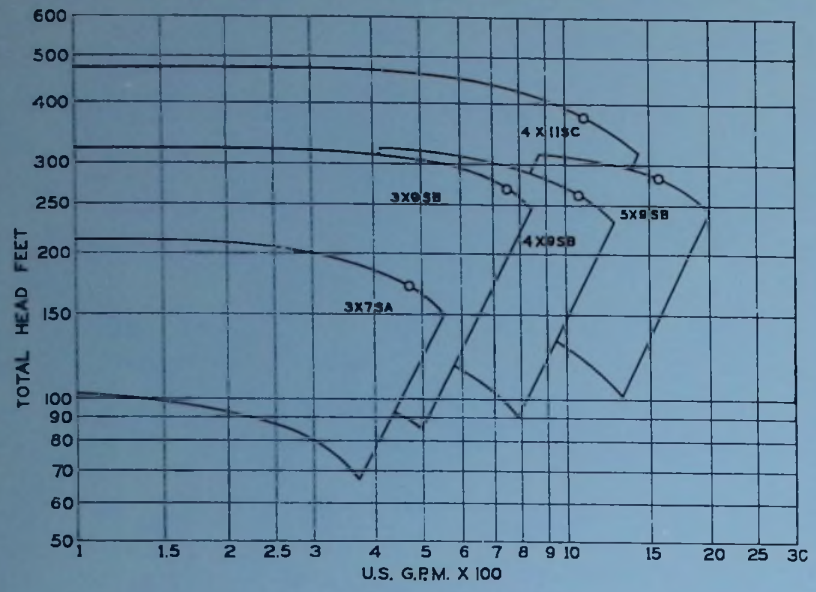
11 Stuffing boxes are deep to accept five rings of packing and a seal cage or single or double mechanical seals.

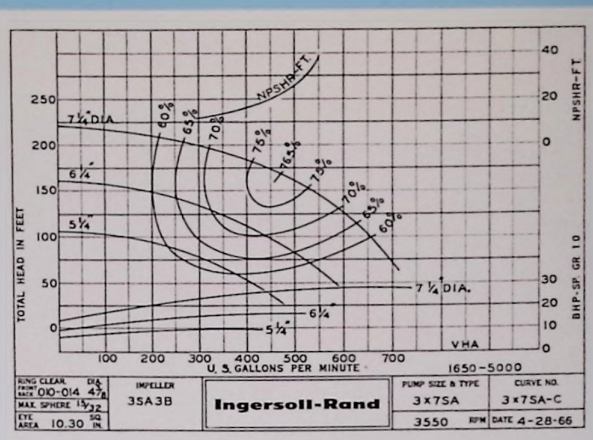


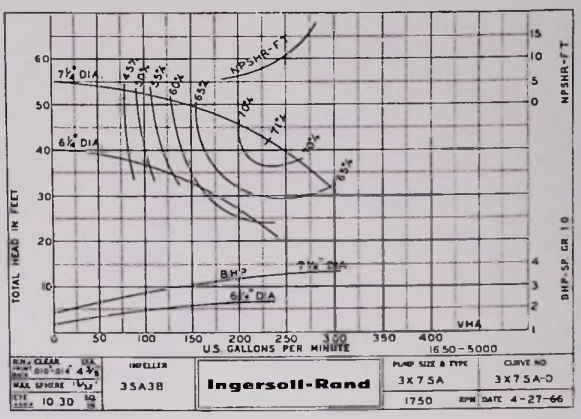
12 The bent-form baseplate provides a rigid support for pump and motor. Multiple grout holes assure complete filling of voids under the base.

Ingersoll-Rand: Centurion Type S Horizontal Split-Case Centrifugal Pumps (1967)
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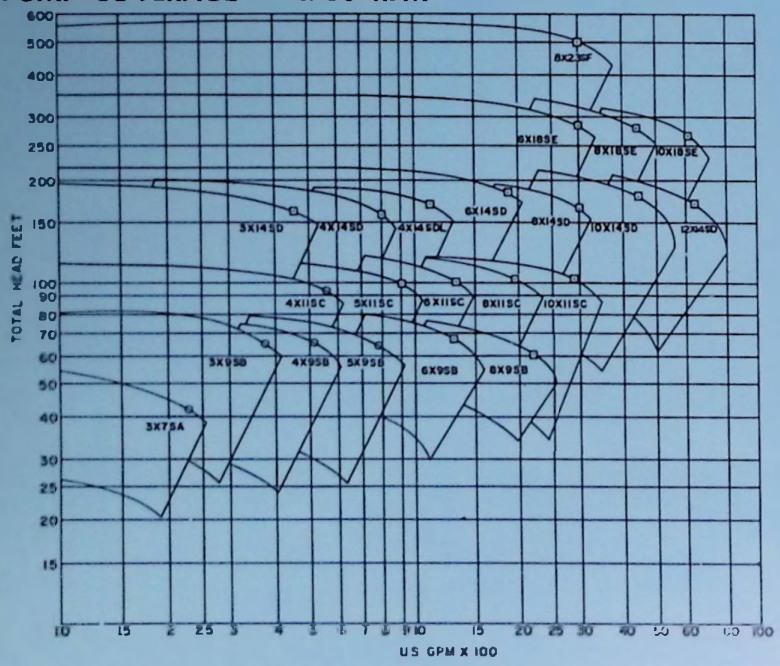
PUMP COVERAGE — 3550 RPM

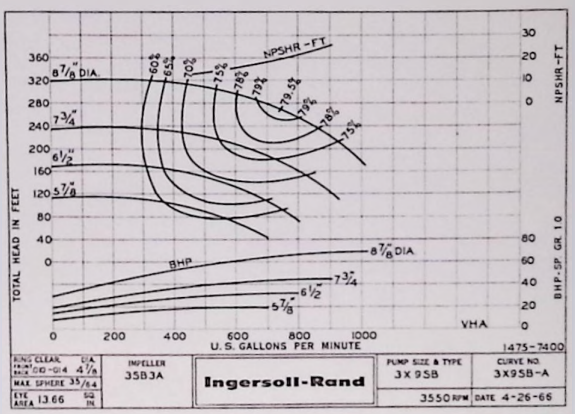






PUMP COVERAGE — 1750 RPM





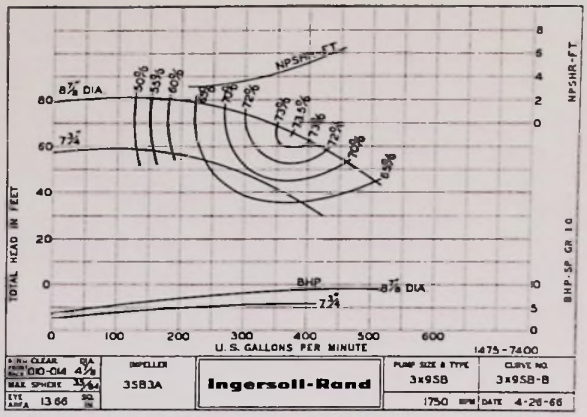
Centurion pumps are built in more than 20 sizes

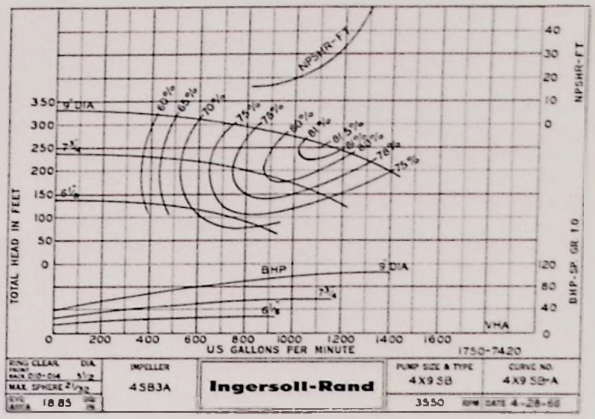
These range charts and performance curves show the extensive hydraulic coverage which the Centurion pump line provides . . . with capacities to 7000 gpm and heads to 500 feet. Plot your head and capacity requirements here to see how closely a Centurion pump selection fits your needs.

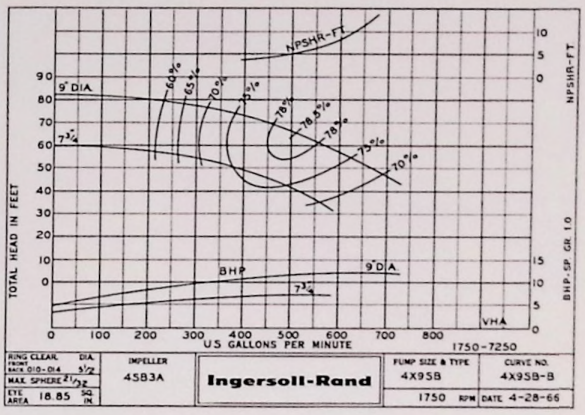
Centurion pumps also fill requirements for reliable performance, low attendance and minimum maintenance, and will maintain their initial hydraulic efficiency for years.

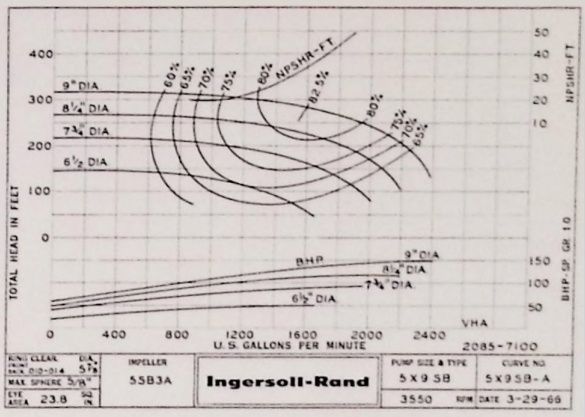
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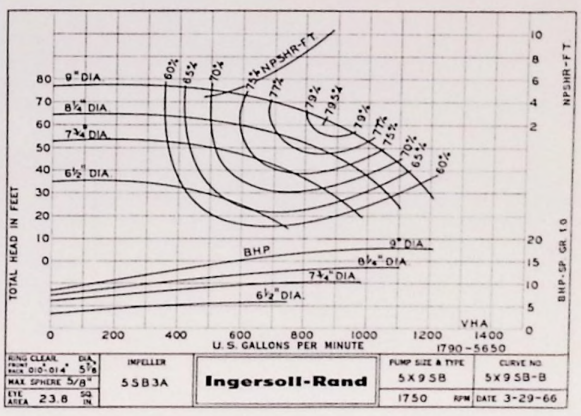
PERFORMANCE

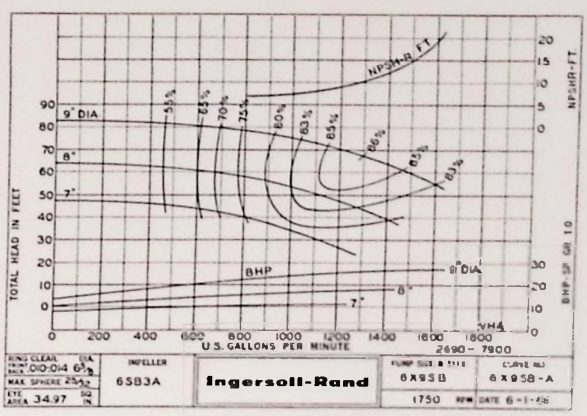


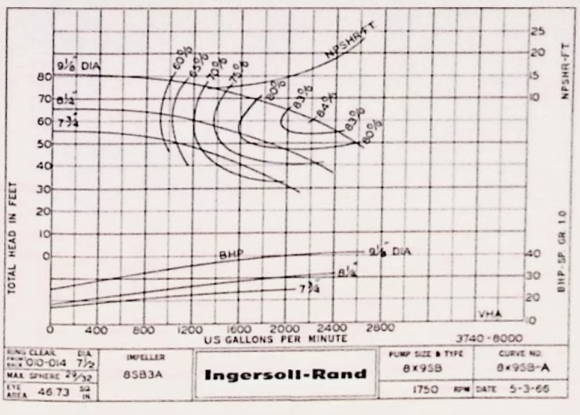


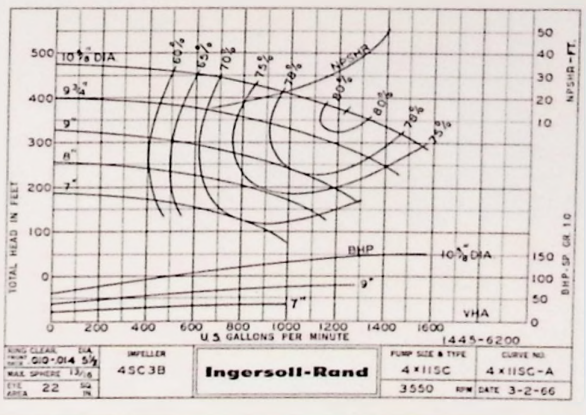






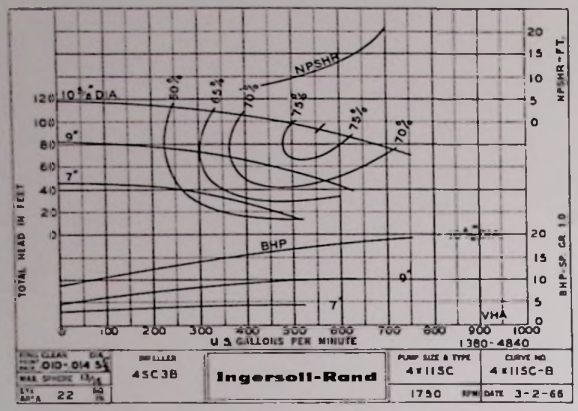


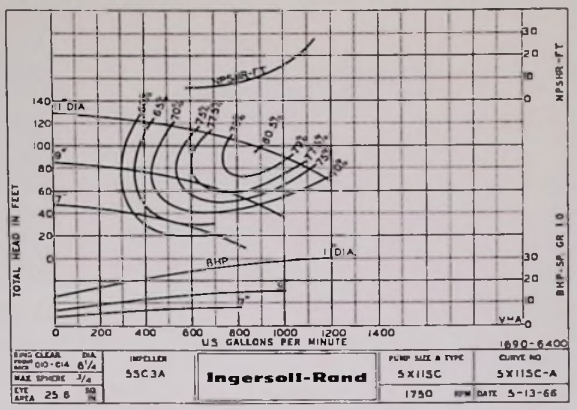


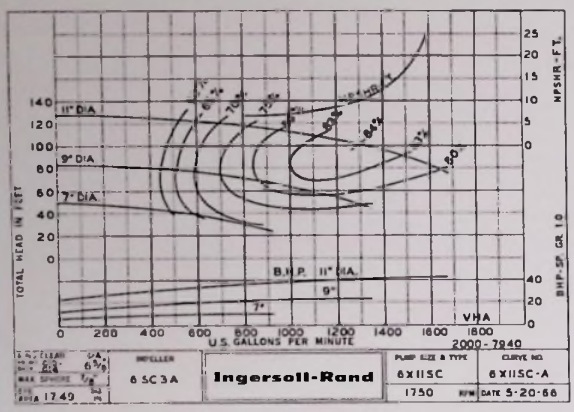


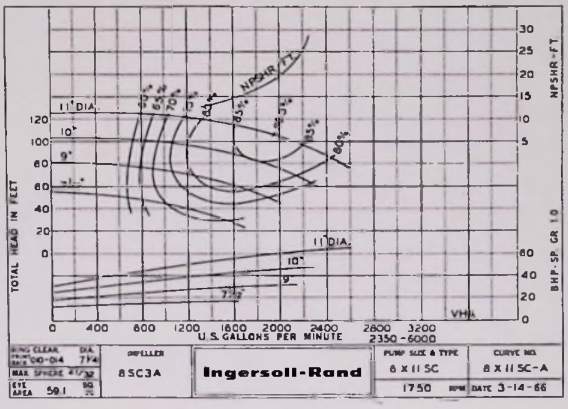
Ingersoll-Rand: Centurion Type S Horizontal Split-Case Centrifugal Pumps (1967)
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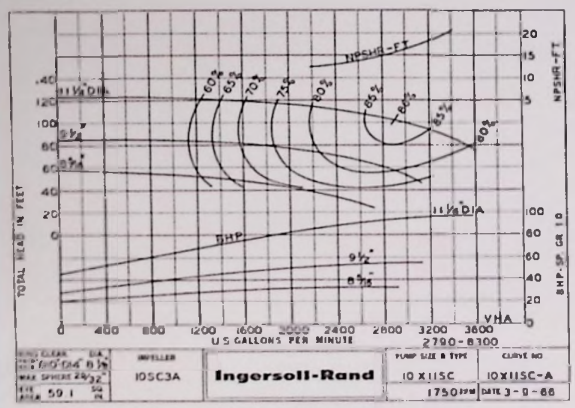
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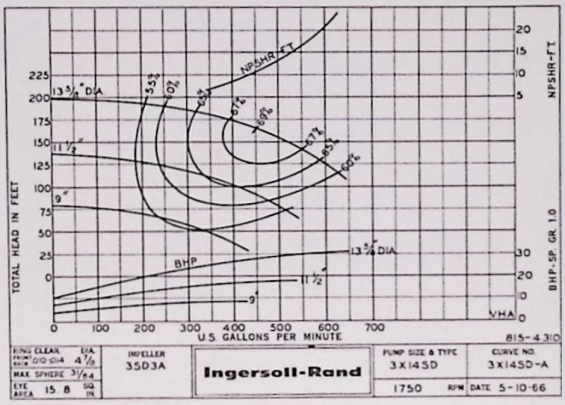


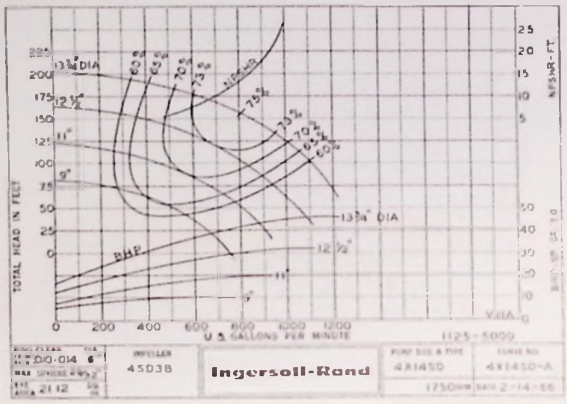


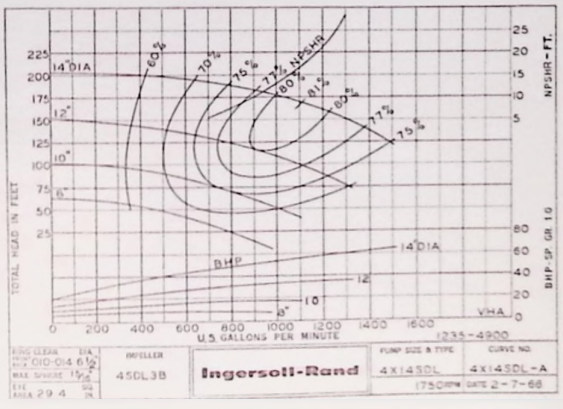






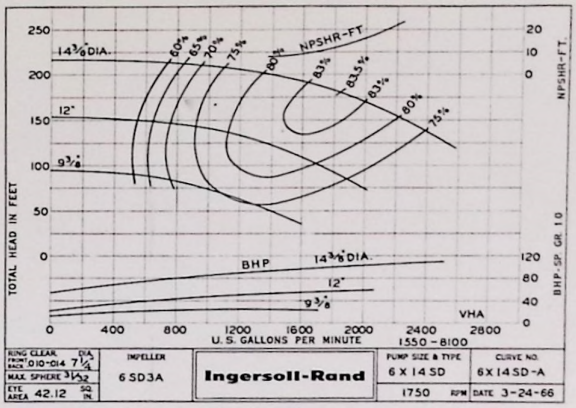


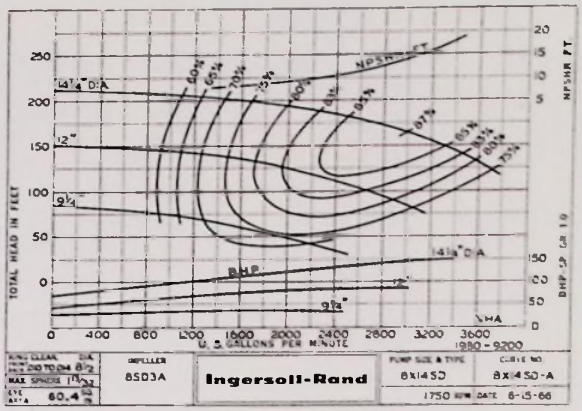


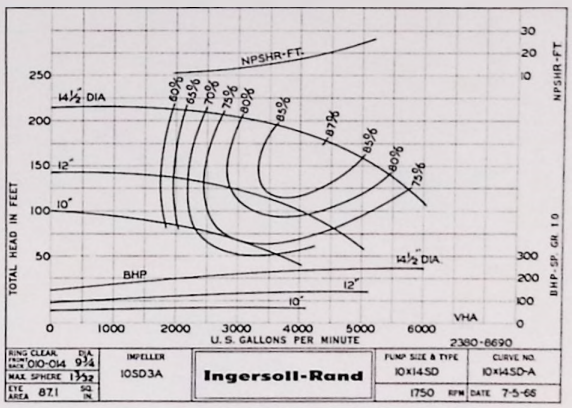


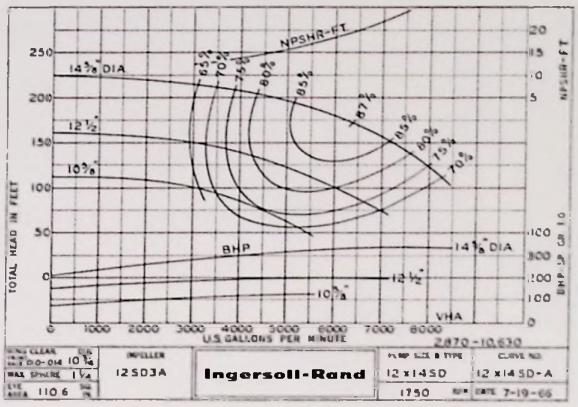
Ingersoll-Rand: Centurion Type S Horizontal Split-Case Centrifugal Pumps (1967)
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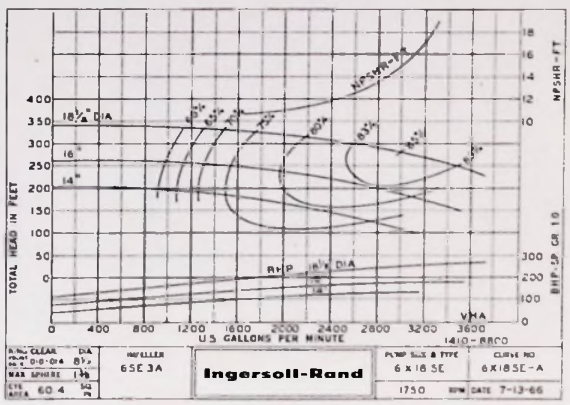
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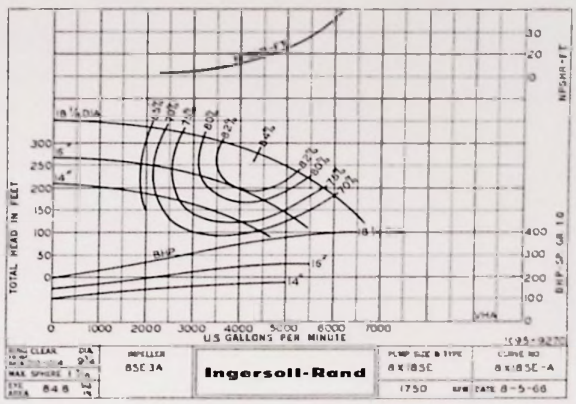


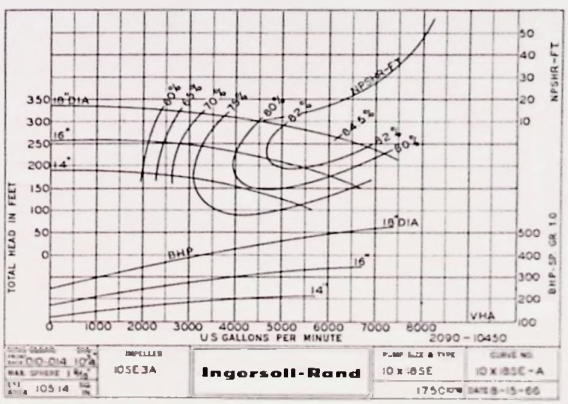


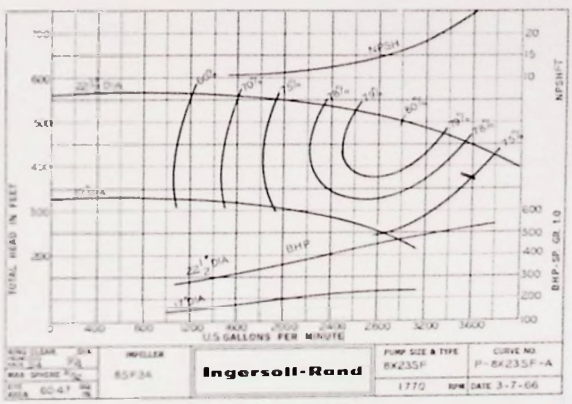






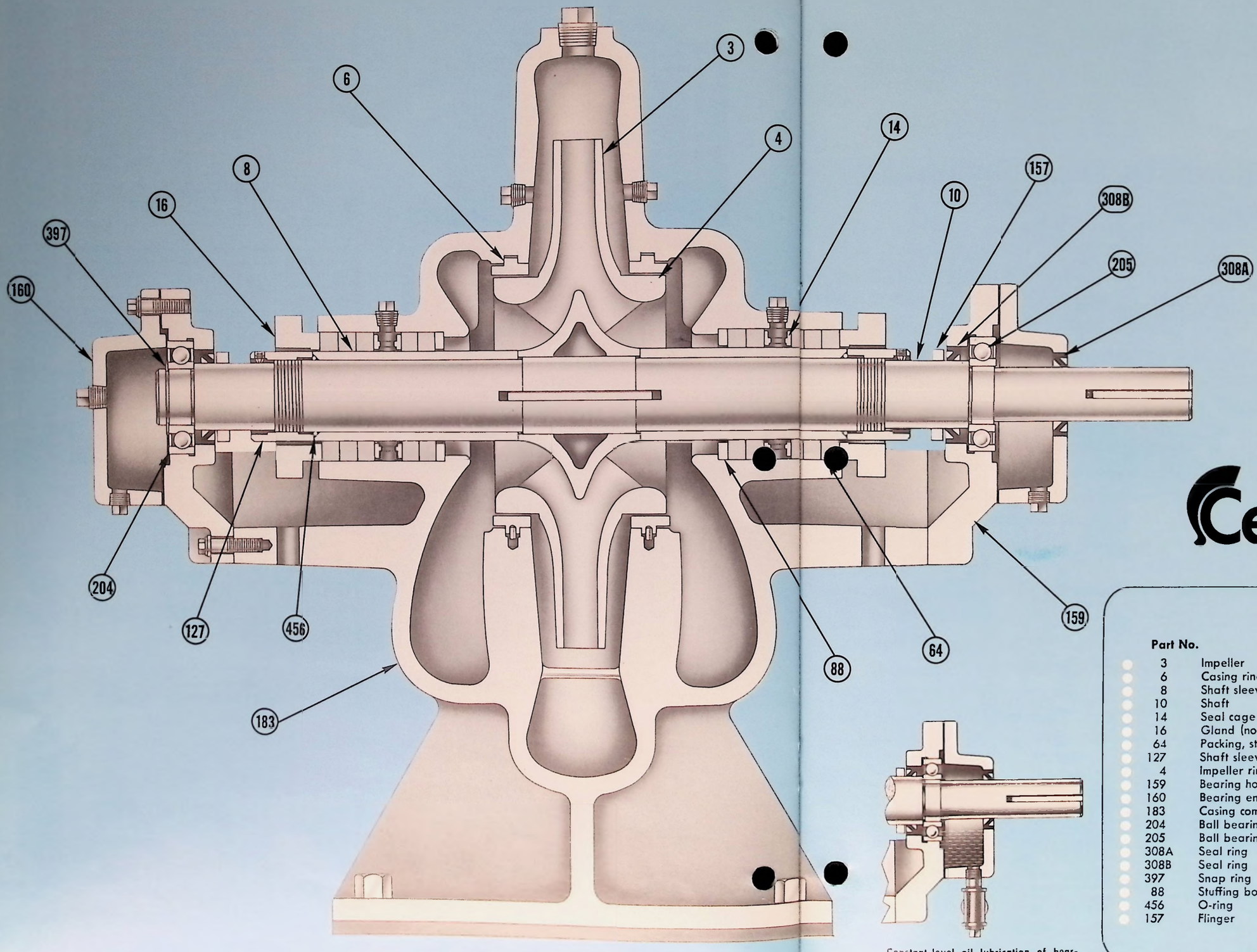






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Ingersoll-Rand



Centurion

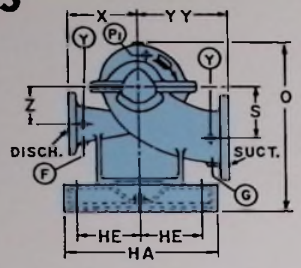
Parts List

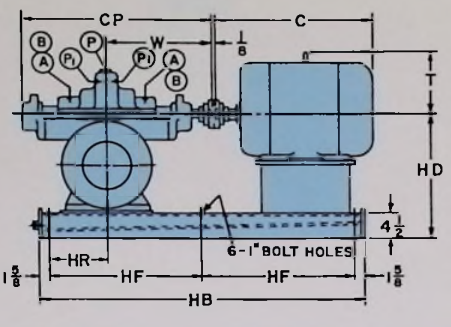
Part No.	Name of part
3	Impeller
6	Casing ring
8	Shaft sleeve
10	Shaft
14	Seal cage (when specified)
16	Gland (not furnished when using mechanical seal)
64	Packing, stuffing box (not furnished when using mechanical seal)
127	Shaft sleeve nut
4	Impeller ring (when specified)
159	Bearing housing
160	Bearing end cover
183	Casing complete
204	Ball bearing (thrust)
205	Ball bearing (radial)
308A	Seal ring
308B	Seal ring
397	Snap ring
88	Stuffing box bushing (not furnished with mechanical seal)
456	O-ring
157	Flinger

Constant level oil lubrication of bearings is optional at no extra cost.

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DIMENSIONS





PUMP DATA

PUMP	Weight	Suction	Disc.	O	S	W	X	Z	CP	HD	YY	HR	Baseplate Number for Motor Frame
3X7SA	237	4	3	22	6	16⅛	9	4 13/16	29	16½	11	8	2P 213–256 / 3P 284–286
3X9SB	313	5	3	24¾	6½	16⅛	9	6	29	18	11½	8	2P 213–256 / 3P 284–286 / 8P 324–365
4X9SB	405	6	4	26⅜	7	17 1/16	11	6¼	30⅞	19	12½	9	2P 213–215 / 3P 254–286 / 8P 324–365 / 9P 404–405
5X9SB	528	8	5	29⅝	9	17⅞	11¾	6⅝	32¼	22	15	10	3P 254–286 / 8P 324–326 / 10P 364–365 / 23P 444–445
6X9SB	640	8	6	30½	9	18 7/16	12	7½	33⅝	22	16	10	2P 213–215 / 3P 254–256 / 8P 284–286 / 9P 324–326
8X9SB	854	10	8	32⅛	10	21 5/16	14	8⅛	39⅛	25	18	13	8P 213–215 / 9P 254–326
4X11SC	452	6	4	28¼	7⅛	17⅛	12½	7⅛	30¾	20	13½	10	2P 213–215 / 3P 254–286 / 8P 324–326 / 9P 364–365 / 10P 404–405 / 23P 444–445
5X11SC	566	8	5	30⅛	9	18 7/16	14	7½	33⅝	22	15	10	2P 213–215 / 3P 254–256 / 8P 284–286 / 9P 324–326
6X11SC	678	8	6	31⅛	9	18 7/16	13	8¼	33⅝	22	16	10	2P 213–215 / 3P 254–256 / 8P 284–286 / 9P 324–326
8X11SC	877	10	8	35	10½	20⅛	16	9	36¾	25	18	12	8P 213–256 / 9P 284–326 / 10P 364–365
10X11SC	1175	12	10	39⅞	12	21 5/16	22	9½	39⅛	29	21	13	23P 284–405
3X14SD	460	5	3	26½	6½	17 1/16	12½	8⅛	30⅞	18	13½	8	2P 213–215 / 3P 254–286
4X14SD	545	6	4	29½	7½	17⅛	12	8 11/16	30¾	20	15	10	2P 213–215 / 3P 254–286 / 8P 324–326 / 9P 364–365
4X14SDL	637	6	4	30	8	17⅛	12	9 3/16	30¾	20	16	10	2P 213–215 / 3P 254–286 / 8P 324–326 / 9P 364–365
6X14SD	931	10	6	36	10	20⅛	15	10⅛	36¾	25	19	12	8P 213–256 / 9P 284–326 / 10P 364–405 / 23P 444–445
8X14SD	1058	10	8	38¾	12	21 11/16	15	10¾	39⅛	27	20	12	9P 324–326 / 10P 364–365 / 23P 404–445 / 24P 447
10X14SD	1551	12	10	41¾	13	24 5/16	20	11½	44⅜	29	22	15	23P 364–405 / 24P 444–447
12X14SD	1892	14	12	45¾	14	24 5/16	22	12¾	44⅜	31	26	15	23P 364–405 / 24P 444–447
6X18SE	1349	10	6	40⅜	12	21 11/16	17	12¼	39⅛	27	20	12	9P 324–326 / 10P 364–365 / 23P 404–445 / 24P 447
8X18SE	1677	12	8	43	13	26	19	12½	46	29	22	14	23P 404–405 / 24P 444–445 / 25P 447
10X18SE	2045	14	10	46¼	14	26	20	13½	46	31	26	14	24P 444–445 / 25P 447
8X23SF	2400	10	8	44¼	12	26	19	15½	46	29	27	14	24P 444–445 / 25P 447

MOTOR DATA

FRAME	213	215	254	256	284	286	324	326	364	365	404	405	444	445	447
Weight*	100	120	195	235	260	320	410	495	600	685	795	900	1250	1365	1700
C*	16	17½	20⅜	22⅜	23¾	25¼	26½	28	29¼	30¼	32⅜	34⅛	38	40	43⅜
T*	5⅜	5⅜	6⅜	6⅜	7	7	8	8	9¼	9¼	10¼	10¼	11¼	11¼	11¼

*Based on standard open motors. Dimensions will vary with make and type of motor.

BASEPLATE DATA

Base No.	Weight	HA	HB	HE	HF
2P	180	19	48¾	7½	22¾
3P	210	19	54¾	7½	25¾
8P	335	25½	54¾	10½	25¾
9P	350	25½	60¾	10½	28¾

Base No.	Weight	HA	HB	HE	HF
10P	375	25½	66¾	10½	31¾
23P	440	31½	72¾	13½	34¾
24P	455	31½	78¾	13½	37¾
25P	490	31½	84¾	13½	40¾

All dimensions in inches, weight in pounds.

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MECHANICAL SPECIFICATIONS

PUMP MODEL	Suction Size Inches	Discharge Size Inches	Coupling Size Min. - Max.	Shaft Diameter Under Coupling Inches	Shaft Diameter Under Sleeve Inches	Stuffing Box Depth, Inches	Packing Size Inches	Sleeve O. D. Inches	Max. Shaft Deflection at Stuffing Box	Minimum Bearing Life in Years	Wearing Ring Clearance
3x7SA	4	3	30/50	1.125	1.5	3.250	7/16	2.0	.002	20	.010
3x9SB	5	3	30/70	1.125	1.5	3.250	7/16	2.0	.001	10	.010
4x9SB	6	4	30/90	1.125	1.5	3.250	7/16	2.0	.001	12	.010
5x9SB	8	5	40/90	1.500	2.0	3.562	½	2.5	.001	9	.010
6x9SB	8	6	30/50	1.125	1.5	3.250	7/16	2.0	.002	20	.010
8x9SB	10	8	40/60	1.500	2.0	3.562	½	2.5	.001	9	.010
4x11SC	6	4	60/90	1.500	2.0	3.562	½	2.5	.001	20	.010
5x11SC	8	5	30/60	1.125	1.5	3.250	7/16	2.0	.001	20	.010
6x11SC	8	6	30/60	1.125	1.5	3.250	7/16	2.0	.002	20	.010
8x11SC	10	8	40/70	1.500	2.0	3.562	½	2.5	.002	20	.010
10x11SC	12	10	50/80	1.500	2.0	3.562	½	2.5	.002	11	.010
3x14SD	5	3	30/50	1.125	1.5	3.250	7/16	2.0	.001	20	.010
4x14SD	5	4	40/60	1.500	2.0	3.562	½	2.5	.002	20	.010
4x14SDL	6	4	40/60	1.500	2.0	3.562	½	2.5	.001	20	.010
6x14SD	10	6	50/90	1.500	2.0	3.562	½	2.5	.002	20	.010
8x14SD	10	8	60/90	2.125	2.5	3.562	½	3.25	.001	20	.010
10x14SD	12	10	70/90	2.125	2.5	3.562	½	3.25	.002	8	.010
12x14SD	14	12	70/90	2.125	2.5	3.562	½	3.25	.002	10	.010
6x18SE	10	6	70/90	2.125	2.5	3.562	½	3.25	.001	20	.010
8x18SE	12	8	80/90	2.500	3.0	3.562	½	3.75	.002	13	.010
10x18SE	14	10	90/100	2.500	3.0	3.562	½	3.75	.002	20	.010
8x23SF	10	8	90/100	2.500	3.0	3.562	½	3.75	.001	20	.010

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MATERIALS — CENTURION PUMPS

Type Construction	Standard Fitted	Bronze Fitted	All Bronze Acid Resistant	All Bronze
Casing	Iron	Iron	Bronze	Bronze
Impeller	Iron	Bronze	Bronze	Bronze
Impeller Rings	Steel	Bronze	Bronze	Bronze
Casing Rings	Iron	Iron	Bronze	Bronze
Shaft Sleeves	Steel	Bronze	Bronze	Bronze
Shaft	Steel	Steel	Steel	Steel
Seal Cages	Iron	Iron	Teflon	Teflon
Glands	Iron	Iron	Bronze	Bronze
Gland Studs	Steel	Steel	Steel	Steel
Gland Nuts	Steel	Steel	Steel	Steel
Packing	Asbestos	Asbestos	Asbestos	Asbestos
Stuffing Box Bushing	Steel	Steel	Bronze	Bronze
Shaft Sleeve Nuts	Steel	Bronze	Bronze	Bronze
Shaft Sleeve "O" Ring	Butyl	Butyl	Butyl	Butyl
Bearing Bodies	Iron	Iron	Iron	Iron
Bolts	Steel	Steel	Steel	Steel
Gaskets	Asbestos	Asbestos	Asbestos	Asbestos

materials to match a wide range of requirements

Each Centurion pump is assembled to your specific conditions from stock components. Other materials are supplied as shown above to equip each pump to handle the specified liquid.

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Architects and Engineers Specifications

for Standard Horizontally Split Case Pumps.

General:

The pumps shall be centrifugal, single stage, horizontally split, volute type having double suction impellers all mounted on a rigid steel base.

Construction:

Casing: High grade cast iron, split on the horizontal centerline shall be supplied. Suction and discharge nozzles and the pump feet are cast in the lower half. The casing shall be suitable for a minimum of 250 psig working pressure and hydrostatically tested to 375 psig.

Shaft: Rigid, extra heavy, high quality, heat-treated carbon steel shall be supplied. The first critical speed of the rotor shall be above 5000 rpm. Bronze tubular shaft sleeves keyed to the shaft shall be furnished. Shaft sleeves shall be locked in place by an external shaft sleeve nut. Shaft deflection at the stuffing box shall not exceed .002 inches.

Impeller: Cast iron or bronze double suction impeller shall be supplied. Casing wear rings shall be furnished. The impeller shall be hydraulically and statically balanced and keyed to the shaft.

Bearings: Prelubricated grease packed bearings having a minimum bearing life of 8 years and an average life of 40 years shall be supplied. Bearing housings shall be flanged and dowelled to bolt to the casing for positive alignment.

Shaft Sleeve: Shall be bronze tubular type and keyed to the shaft. "O" ring seals shall be provided to prevent leakage under the sleeve and the shaft sleeve nuts shall externally lock the sleeve in place.

Stuffing Box: Shall be packed with a minimum of five rings and a seal cage or mechanical seal. Renewable stuffing box bushings of steel shall be supplied.

Coupling: Falk model T flexible coupling shall be supplied.

Baseplate: Shall be a rigid fabricated steel unit having a positive sloping collection chamber to collect and drain any leakage from the pump.

Motor: Shall be a _____ horsepower _____ RPM with class B insulation, 40 degree C rise, drip proof motor for 460 volts 3 phase 60 cycle current. New Nema frame motors are preferred.

Complete assembled pumping unit shall be supplied as listed above to meet the following service conditions:

No. of Units required . . . . . _____
Service . . . . . _____
Liquid . . . . . _____
Temperature . . . . . _____ °F
Specific Gravity . . . . . _____
Capacity Design . . . . . _____ GPM
Net Positive Suction Head Available . . . . . _____ Feet
Total Head Developed . . . . . _____ Feet
Maximum Speed . . . . . _____ RPM

Pump shall be Ingersoll-Rand Type S Centurion.

Ingersoll-Rand
11 Broadway, New York, N. Y. 10004

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