

# TYPE 3740XL

## EXTRA LARGE WET RUNNING CARTRIDGE SPLIT SEAL

Technical Specification

- A – Mating Ring
- B – Mating Ring Adapter Assembly
- C – Mating Ring Adapter Gasket
- D – Sealing Strip
- E – O-ring (Split)
- F – Primary Ring
- G – Retaining Ring
- H – O-ring (Split)
- I – Gland Plate Assembly
- J – Gland Plate Gasket
- K – O-ring (Split)
- L – Spring Housing Assembly
- M – Captive Hex Head Cap Screws
- N – Captive Socket Head Cap Screws
- O – Set Screws



### Product Description

The Type 3740XL extra large split seal uses the latest modular split seal technology from John Crane that is combined with the unique design requirements for wet-running services into a single split seal platform.

The Type 3740XL wet-running split seal is the extra large version of John Crane's successful Type 3740 split seal that incorporates those proven design features for fast and easy seal installation, while providing reliable seal performance in demanding large pump and other big rotating equipment fluid services.

Type 3740XL split seals are especially beneficial for use on large pumps and rotating equipment that are difficult and time consuming to disassemble for non-split seal installations and repairs or packing maintenance, commonly used in desalination, irrigation, mineral processing, power generation, pulp and paper and water/ wastewater industries.

### Design Features

- Factory-preassembled rotor assembly for fast, easy yet precise rotating face installation
- Separate stationary seal face for visual assurance the halves are correctly aligned
- Factory-preassembled gland plate assembly for easy, single-step installation
- Factory-preassembled spring housing assembly for fast, easy seal face loading installation
- Balanced primary ring design for increased pressure capability
- Premium seal face materials for optimal performance

### Performance Capabilities

- Temperatures: up to 250°F/121°C
- Pressures: up to 200 psi(g)/13.8 bar(g)
- Speeds: up to 3500 fpm/17.8 m/s
- Runout:
  - 6.250"-7.750"/155mm-195mm sizes: 0.150"/3.81mm TIR
  - 8.000"-10.000"/200mm-255mm sizes: 0.180"/4.57mm TIR

### Typical Applications

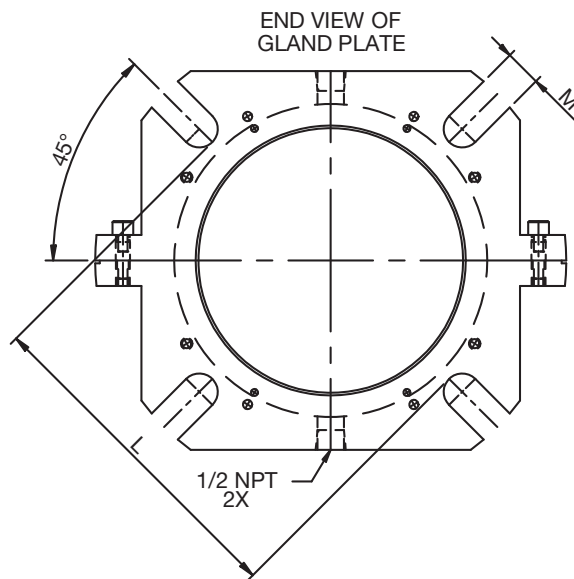
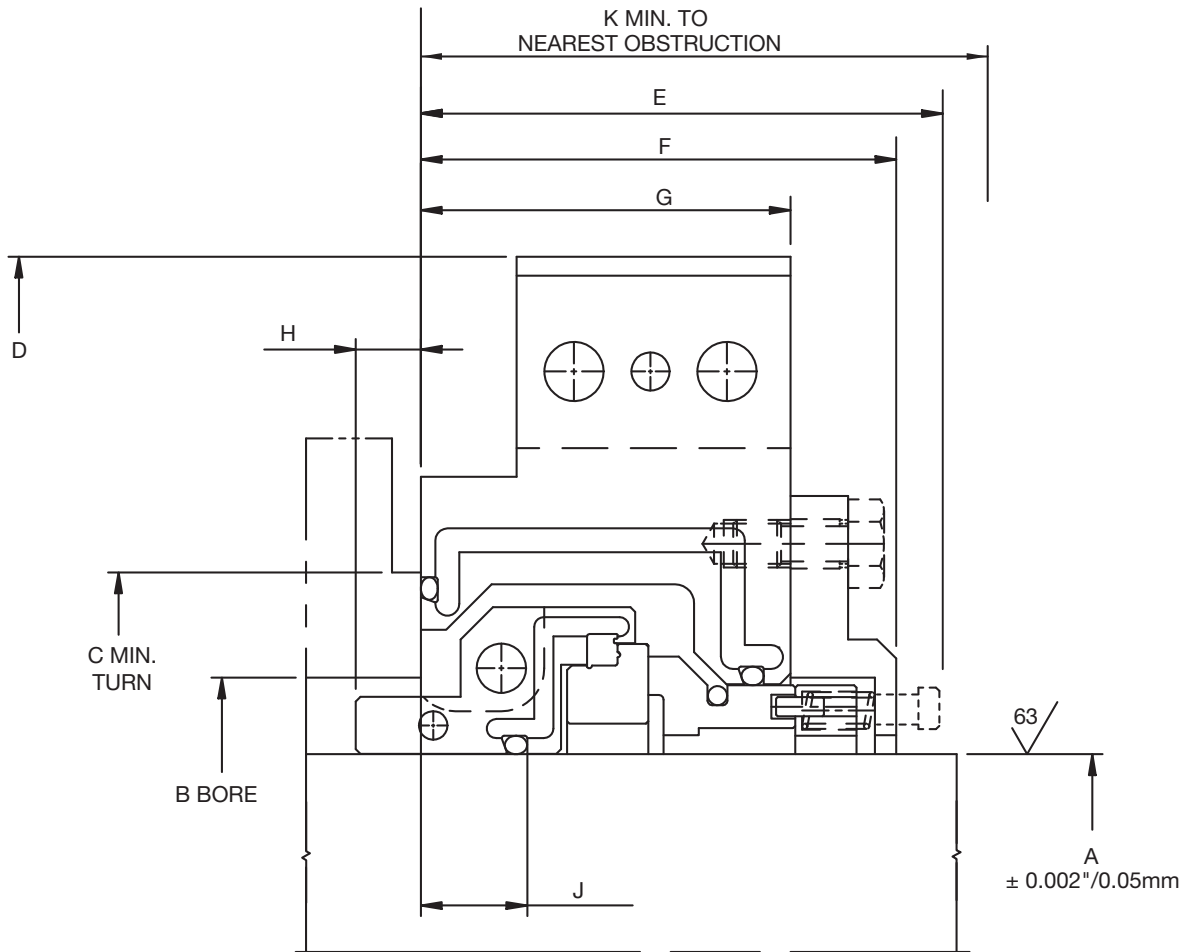
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|-----------------------|--------------------|
| • Agitators/mixers    | • Chemicals        |
| • Centrifugal pumps   | • Light slurries   |
| • Split case pumps    | • Marine           |
| • Vertical lift pumps | • Paper stock      |
| • Water turbines      | • Water/wastewater |

- Captive socket head cap screws to eliminate lost or dropped screws
- Same-side screws on all hardware for easy access and faster installation
- Dovetail O-ring grooves to contain all O-rings without requiring adhesives
- Fast and easy field repair kits that do not require any special tools, adhesives or procedures
- Two connections in the gland to provide easy access for flush piping

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### Type 3740XL Typical Arrangement



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## EXTRA LARGE WET RUNNING CARTRIDGE SPLIT SEAL

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### Type 3740XL Dimensional Data (inches)

SEAL SIZE	SIZE CODE	A	B		C	D	E	F	G	H	J	K	L	M
			MIN.	MAX.	MIN.							MIN.		
6.250	1587	6.250	7.250	8.250	8.625	12.750	3.408	3.105	2.415	0.425	0.695	3.700	9.062	1.000
6.500	1651	6.500	7.500	8.500	8.875	12.750	3.408	3.105	2.415	0.425	0.695	3.700	9.312	1.000
6.750	1714	6.750	7.750	8.750	9.125	13.250	3.408	3.105	2.415	0.425	0.695	3.700	9.562	1.000
7.000	1778	7.000	8.000	9.000	9.375	13.250	3.408	3.105	2.415	0.425	0.695	3.700	9.812	1.000
7.250	1841	7.250	8.250	9.250	9.625	13.500	3.408	3.105	2.415	0.425	0.695	3.700	10.062	1.000
7.500	1905	7.500	8.500	9.500	9.875	14.000	3.408	3.105	2.415	0.425	0.695	3.700	10.312	1.000
7.750	1968	7.750	8.750	9.750	10.125	14.000	3.408	3.105	2.415	0.425	0.695	3.700	10.562	1.000
8.000	2032	8.000	9.250	10.250	10.625	16.000	3.869	3.480	2.650	0.425	0.810	4.150	11.063	1.125
8.250	2095	8.250	9.500	10.500	10.875	16.500	3.869	3.480	2.650	0.425	0.810	4.150	11.563	1.125
8.500	2159	8.500	9.750	10.750	11.125	16.500	3.869	3.480	2.650	0.425	0.810	4.150	11.563	1.125
8.750	2222	8.750	10.000	11.000	11.375	17.000	3.869	3.480	2.650	0.425	0.810	4.150	12.063	1.125
9.000	2286	9.000	10.250	11.250	11.625	17.000	3.869	3.480	2.650	0.425	0.810	4.150	12.063	1.125
9.250	2349	9.250	10.500	11.500	11.875	17.500	3.869	3.480	2.650	0.425	0.810	4.150	12.563	1.125
9.500	2413	9.500	10.750	11.750	12.125	17.500	3.869	3.480	2.650	0.425	0.810	4.150	12.563	1.125
9.750	2476	9.750	11.000	12.000	12.375	18.000	3.869	3.480	2.650	0.425	0.810	4.150	13.063	1.125
10.000	2540	10.000	11.250	12.250	12.625	18.000	3.869	3.480	2.650	0.425	0.810	4.150	13.063	1.125

### Type 3740XL Dimensional Data (mm)

SEAL SIZE	SIZE CODE	A	B		C	D	E	F	G	H	J	K	L	M
			MIN.	MAX.	MIN.							MIN.		
155	1550	155.00	184.15	209.55	219.08	323.85	86.56	78.87	61.34	10.80	17.65	93.98	230.17	25.40
160	1600	160.00	190.50	215.90	225.43	323.85	86.56	78.87	61.34	10.80	17.65	93.98	236.52	25.40
165	1650	165.00	190.50	215.90	225.43	323.85	86.56	78.87	61.34	10.80	17.65	93.98	236.52	25.40
170	1700	170.00	196.85	222.25	231.78	336.55	86.56	78.87	61.34	10.80	17.65	93.98	242.87	25.40
175	1750	175.00	203.20	228.60	238.13	336.55	86.56	78.87	61.34	10.80	17.65	93.98	249.22	25.40
180	1800	180.00	209.55	234.95	244.48	342.90	86.56	78.87	61.34	10.80	17.65	93.98	255.57	25.40
185	1850	185.00	209.55	234.95	244.48	342.90	86.56	78.87	61.34	10.80	17.65	93.98	255.57	25.40
190	1900	190.00	215.90	241.30	250.83	355.60	86.56	78.87	61.34	10.80	17.65	93.98	261.92	25.40
195	1950	195.00	222.25	247.65	257.18	355.60	86.56	78.87	61.34	10.80	17.65	93.98	268.27	25.40
200	2000	200.00	234.95	260.35	269.88	406.40	98.27	88.39	67.31	10.80	20.57	105.41	281.00	28.58
205	2050	205.00	241.30	266.70	276.23	419.10	98.27	88.39	67.31	10.80	20.57	105.41	293.70	28.58
210	2100	210.00	241.30	266.70	276.23	419.10	98.27	88.39	67.31	10.80	20.57	105.41	293.70	28.58
215	2150	215.00	247.65	273.05	282.58	419.10	98.27	88.39	67.31	10.80	20.57	105.41	293.70	28.58
220	2200	220.00	254.00	279.40	288.93	431.80	98.27	88.39	67.31	10.80	20.57	105.41	306.40	28.58
225	2250	225.00	260.35	285.75	295.28	431.80	98.27	88.39	67.31	10.80	20.57	105.41	306.40	28.58
230	2300	230.00	266.70	292.10	301.63	444.50	98.27	88.39	67.31	10.80	20.57	105.41	319.10	28.58
235	2350	235.00	266.70	292.10	301.63	444.50	98.27	88.39	67.31	10.80	20.57	105.41	319.10	28.58
240	2400	240.00	273.05	298.45	307.98	444.50	98.27	88.39	67.31	10.80	20.57	105.41	319.10	28.58
245	2450	245.00	279.40	304.80	314.33	457.20	98.27	88.39	67.31	10.80	20.57	105.41	331.80	28.58
250	2500	250.00	285.75	311.15	320.68	457.20	98.27	88.39	67.31	10.80	20.57	105.41	331.80	28.58
255	2550	255.00	285.75	311.15	320.68	457.20	98.27	88.39	67.31	10.80	20.57	105.41	331.80	28.58

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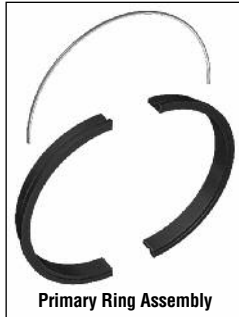
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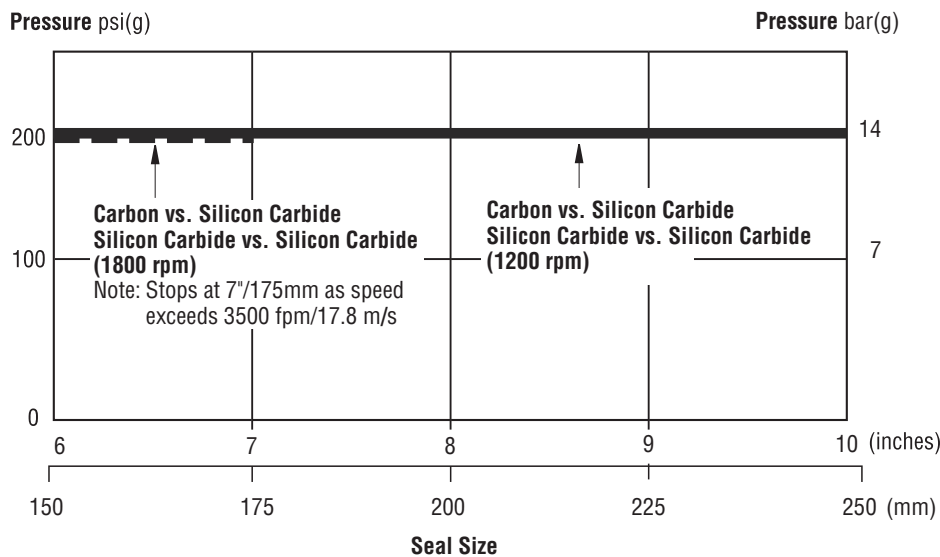
### Modular Split Seal Technology

The Type 3740XL cartridge split seal is the latest in split seal design technology that makes installation as fast and as easy as possible, yet ensures the important step of proper seal face halves alignment is done correctly for optimal performance. The Type 3740XL seal is comprised of pre-assembled modules that combine multiple individual parts into four components:

- Rotor assembly – rotating mating ring seal face and hardware
- Primary ring assembly – stationary primary ring seal face and retaining ring clip
- Gland plate assembly – stationary seal housing
- Spring housing assembly – stationary face loading spring assembly



### Basic Pressure Ratings



The basic pressure rating is for a standard Type 3740XL seal, as shown on the typical arrangement, when installed according to the criteria given in this sheet and generally accepted industrial practices.

The basic pressure rating assumes stable operation at the rated speed in a clean, cool, lubricating, nonvolatile liquid, with an adequate flush rate. When used with the multiplier factors, the basic pressure rating can be adjusted to provide a conservative estimate of the dynamic pressure rating. For process services outside this range or a more precise assessment of the dynamic pressure rating, contact John Crane for more information.

### Multiplier Factors

	Selection Considerations	Multiplier Factor
Sealed Fluid Temperature	Below 175°F/80°C	x 1.00
	From 175°F to 250°F/80°C to 125°C	x 0.90

From the multiplier factors chart, apply the multipliers for the specific service requirements to determine the maximum operating pressure for the application.

$$200 \text{ psi(g)/13.8 bar(g)} \times 0.90 = 180 \text{ psi(g)/12.4 bar(g)}$$

At 1200 rpm with the service conditions noted, an 8"/200mm diameter Type 3740XL with carbon vs. silicon carbide seal faces has a maximum operating limit of 180 psi(g)/12.4 bar(g)

#### Example for Determining Pressure Rating Limits

Seal: 8"/200mm diameter Type 3740XL

Product: water

Face material: carbon vs. silicon carbide

Temperature: 185°F/85°C

Speed: 1200 rpm

Using the basic pressure rating chart, the maximum pressure would be 200 psi(g)/13.8 bar(g).

**Materials of Construction**

SEAL COMPONENTS	MATERIALS	
	Description	Standard
Primary Ring	Carbon	Silicon Carbide
Mating Ring	Silicon Carbide	—
Gland Plate Assembly Mating Ring Adapter Assembly Spring Adapter Assembly Set Spring Housing Assembly	316 Stainless Steel	Alloy 20 Monel® Titanium Inconel® 625
Retaining Ring	Alloy X-750	—
Springs	Alloy C-276	—
Elastomers	Ethylene Propylene Fluoroelastomer	—

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