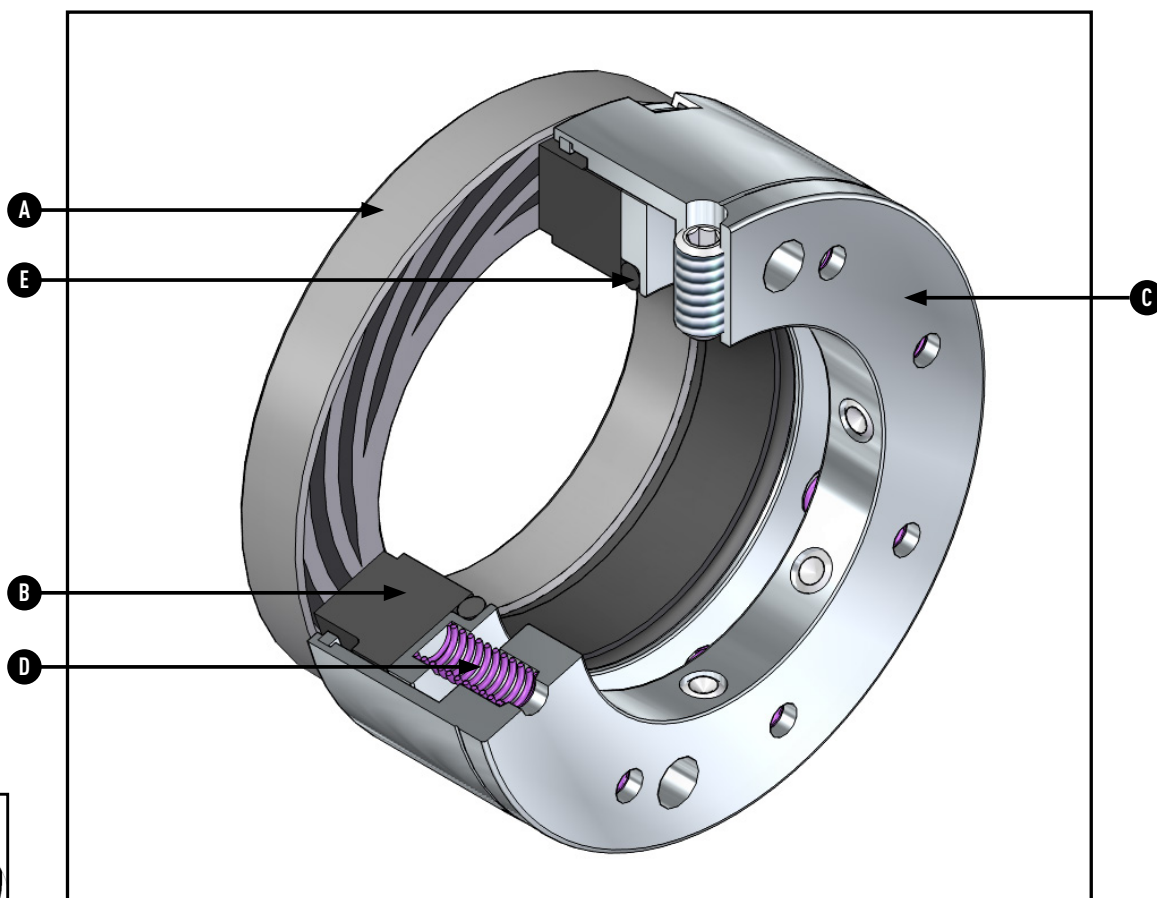
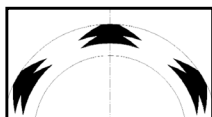


- A – Mating ring
- B – Primary ring
- C – Retainer
- D – Springs
- E – O-Rings



Optional bi-directional
grooved profile



Product description

The Type 28SC is an extremely compact dry-running non-contacting gas seal designed for secondary containment. Secondary containment seals perform in response to primary seal leakage or failure and represent a less complex alternative to dual un-pressurised (tandem) seals using a Plan 52 lubrication system.

The 28SC occupies an outboard position in a cartridge arrangement. Normal leakage from the primary seal is small and measured in ppm. The use of a containment seal gland and buffer gas injection moves vaporous leakage to a flare system. The 28SC is typically applied with a Plan 72 secondary seal support system. When called upon to seal gross primary seal leakage, 28SC closes down to run as a contacting seal directing leakage to flare system or a drain.

Product description

- Temperature: -20°F to 500°F/-29°C to 260°C
- Pressure: Up to 44 psi(g)/3 bar(g) (Gas Operation)
Up to 580 psi(g)/40 bar(g) (Liquid Operation)
- Speed: 1450 to 3600 Rpm

Consult John Crane Engineering for the possibilities of lower speeds and for higher gas pressures

Design features

- Non-contacting operation
- Option of patented bi-directional groove profile
- Compact short axial length
- Long life – near zero wear
- High pressure liquid containment capability
- Simplified dual containment using Plan 72
- Option of patented bi-directional groove profile mating ring (pumps a small amount of inert buffer gas from the outside diameter towards the un-grooved portion of the mating ring. This compressed gas cushion separates the primary seal face and mating ring and creates a non-contacting seal)
- Dry-running technology eliminates need for seal face lubrication halting frequent maintenance and concern with product contamination of a lubricating liquid
- The unbalanced technology reduces emissions to minimum No balance step in shaft, extremely short axial length Contains process liquid in the event of primary seal failure and handles up to 580 psi(g)/40 bar(g) in contacting mode
- Can operate in a partial vacuum without face and mating ring contact. Seal can be used in a totally enclosed containment installation
- Large under and over compression allowance for flexible installation

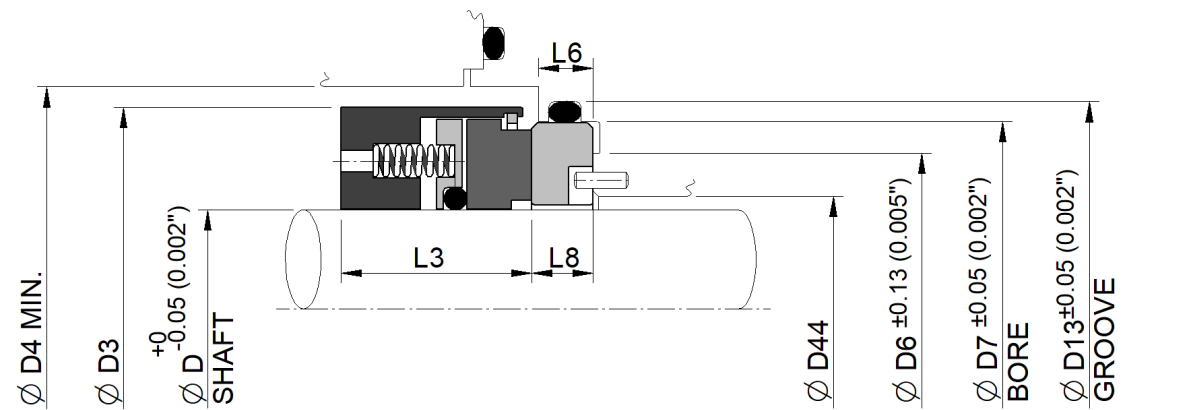


TYPE 28SC

DRY-RUNNING, SECONDARY
CONTAINMENT GAS SEAL

Technical Specification

Type 28SC typical arrangement/dimensional data



Type 28SC dimensions in mm - IMPERIAL

Seal size (mm)	D	D3	D4	D6	D7	D13	D44	L3	L6	L8
25.4	25.4	55.5	61.5	45.33	51.33	57.17	31.65	28	8	9
28.5	28.5	58.6	64.6	48.43	54.43	60.27	34.75	28	8	9
31.7	31.7	61.8	67.8	51.63	57.63	63.47	37.95	28	8	9
34.9	34.9	65.0	71.0	54.83	60.83	66.67	41.15	28	8	9
38.1	38.1	68.2	74.2	58.03	64.03	69.87	44.35	28	8	9
41.2	41.2	71.3	77.3	61.13	67.13	72.97	47.45	28	8	9
44.4	44.4	74.5	80.5	64.33	70.33	76.17	50.65	28	8	9
47.6	47.6	77.7	83.7	67.53	73.53	79.37	53.85	28	8	9
50.8	50.8	80.9	86.9	70.73	76.73	82.57	57.05	28	8	9
53.9	53.9	84.0	90.0	73.83	79.83	85.67	60.15	28	8	9
57.1	57.1	87.2	93.2	77.03	83.03	88.87	63.35	28	8	9
60.3	60.3	90.4	96.4	80.23	86.23	92.07	66.55	28	8	9
63.5	63.5	93.6	99.6	83.43	89.43	95.27	69.75	28	8	9
66.6	66.6	96.7	102.7	86.53	92.53	98.37	72.85	28	8	9
69.8	69.8	99.9	105.9	89.73	95.73	101.57	76.05	28	8	9
73.0	73.0	107.1	113.1	96.93	102.93	108.77	79.25	30	9	10
76.2	76.2	110.3	116.3	100.13	106.13	111.97	82.45	30	9	10
79.3	79.3	113.4	119.4	103.23	109.23	115.07	85.55	30	9	10
82.5	82.5	116.6	122.6	106.43	112.43	118.27	88.75	30	9	10
85.7	85.7	119.8	125.8	109.63	115.63	121.47	91.95	30	9	10
88.9	88.9	123.0	129.0	112.83	118.83	124.67	95.15	30	9	10
92.0	92.0	126.1	132.1	115.93	121.93	127.77	98.25	30	9	10
95.2	95.2	129.3	135.3	119.13	125.13	130.97	101.45	30	9	10
98.4	98.4	132.5	138.5	122.33	128.33	134.17	104.65	30	9	10
101.6	101.6	135.7	141.7	125.53	131.53	137.37	107.85	30	9	10
104.7	104.7	138.8	144.8	128.63	134.63	140.47	110.95	30	9	10
107.9	107.9	142.0	148.0	131.83	137.83	143.67	114.15	30	9	10
111.1	111.1	145.2	151.2	135.03	141.03	146.87	117.35	30	9	10
114.3	114.3	148.4	154.4	138.23	144.23	150.07	120.55	30	9	10



TYPE 28SC

DRY-RUNNING, SECONDARY
CONTAINMENT GAS SEAL

Technical Specification

Type 28SC dimensions in inches - IMPERIAL

Seal size (inches)	D	D3	D4	D6	D7	D13	D44	L3	L6	L8
1.000	1.000	2.185	2.421	1.785	2.021	2.251	1.246	1.102	0.315	0.354
1.125	1.125	2.307	2.543	1.907	2.143	2.373	1.368	1.102	0.315	0.354
1.250	1.250	2.433	2.669	2.033	2.269	2.499	1.494	1.102	0.315	0.354
1.375	1.375	2.559	2.795	2.159	2.395	2.625	1.620	1.102	0.315	0.354
1.500	1.500	2.685	2.921	2.285	2.521	2.751	1.746	1.102	0.315	0.354
1.625	1.625	2.807	3.043	2.407	2.643	2.873	1.868	1.102	0.315	0.354
1.750	1.750	2.933	3.169	2.533	2.769	2.999	1.994	1.102	0.315	0.354
1.875	1.875	3.059	3.295	2.659	2.895	3.125	2.120	1.102	0.315	0.354
2.000	2.000	3.185	3.421	2.785	3.021	3.251	2.246	1.102	0.315	0.354
2.125	2.125	3.307	3.543	2.907	3.143	3.373	2.368	1.102	0.315	0.354
2.250	2.250	3.433	3.669	3.033	3.269	3.499	2.494	1.102	0.315	0.354
2.375	2.375	3.559	3.795	3.159	3.395	3.625	2.620	1.102	0.315	0.354
2.500	2.500	3.685	3.921	3.285	3.521	3.751	2.746	1.102	0.315	0.354
2.625	2.625	3.807	4.043	3.407	3.643	3.873	2.868	1.102	0.315	0.354
2.750	2.750	3.933	4.169	3.533	3.769	3.999	2.994	1.102	0.315	0.354
2.875	2.875	4.217	4.453	3.816	4.052	4.282	3.120	1.181	0.354	0.394
3.000	3.000	4.343	4.579	3.942	4.178	4.408	3.246	1.181	0.354	0.394
3.125	3.125	4.465	4.701	4.064	4.300	4.530	3.368	1.181	0.354	0.394
3.250	3.250	4.591	4.827	4.190	4.426	4.656	3.494	1.181	0.354	0.394
3.375	3.375	4.717	4.953	4.316	4.552	4.782	3.620	1.181	0.354	0.394
3.500	3.500	4.843	5.079	4.442	4.678	4.908	3.746	1.181	0.354	0.394
3.625	3.625	4.965	5.201	4.564	4.800	5.030	3.868	1.181	0.354	0.394
3.750	3.750	5.091	5.327	4.690	4.926	5.156	3.994	1.181	0.354	0.394
3.875	3.875	5.217	5.453	4.816	5.052	5.282	4.120	1.181	0.354	0.394
4.000	4.000	5.343	5.579	4.942	5.178	5.408	4.246	1.181	0.354	0.394
4.125	4.125	5.465	5.701	5.064	5.300	5.530	4.368	1.181	0.354	0.394
4.250	4.250	5.591	5.827	5.190	5.426	5.656	4.494	1.181	0.354	0.394
4.375	4.375	5.717	5.953	5.316	5.552	5.782	4.620	1.181	0.354	0.394
4.500	4.500	5.843	6.079	5.442	5.678	5.908	4.746	1.181	0.354	0.394



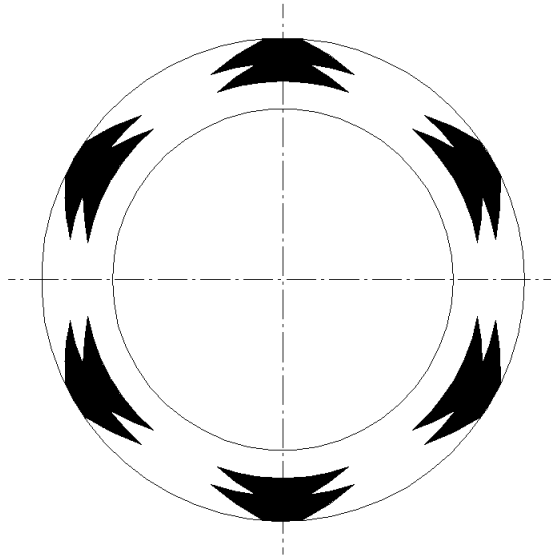
TYPE 28SC

DRY-RUNNING, SECONDARY
CONTAINMENT GAS SEAL

Technical Specification

Type 28SC dimensions in inches - IMPERIAL

- Shaft rotation is bi-directional
- Facing spiral groove profile
- Mating ring



Materials of construction

Seal Components	Materials	
Description	Standard	Optional
Primary Ring	Antimony Impregnated Carbon (GMC 9048) Antimony Impregnated Carbon for T28 Seals (GMC 9028)	–
Mating Ring	Tungsten Carbide (GMC 9205)	Silicon Carbide (GMC 9221)
O-Rings	Fluoroelastomer (GMC 9549)	Perfluoroelastomer (GMC 9579 or 9580) Nitrile (GMC 9501) Ethylene Propylene (GMC 9561)
Springs	Alloy C-276 (GMC 0690)	–
Retainer Set Screws Thrust Ring Snap Ring	Stainless Steel (GMC 0550)	Alloy 20 CB3 SS (GMC 0560)



TYPE 28SC

DRY-RUNNING, SECONDARY
CONTAINMENT GAS SEAL

Technical Specification

Elastomer temperature limits

Material	Temperature	
	°C	°F
Fluoroelastomer	-29°C to 205°C	-20 to 401
Perfluoroelastomer	-18°C to 260°C	0 to 500
Nitrile	-40°C to 107°C	-40 to 225
EPDM	-45°C to 149°C	-50 to 300

Criteria for installation

Shaft/Sleeve	Limits
Surface Finish	Up to 1.6µm Ra or better (Fine-machined)
Ovality/Out of Roundness (Shaft)	0.05 mm (0.002")
End Play/Axial Float Allowance	± 1.6mm (0.063")



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