



# H-Seal and H-Gland Dimensions Metric - October 2015

## H-Seal OD, Step ID and ID Basic Dimensions

## Zero Clearance H-Seals

## Gap H-Seals

## H-Gland

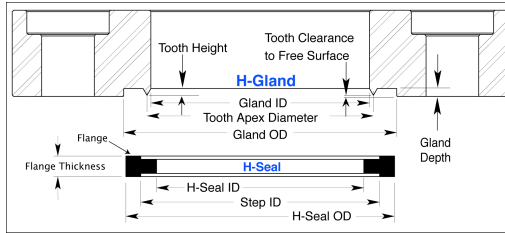
## Assembly & Compression

## Interchangeable Elastomeric O-Ring Dimensions

### SI (metric) Engineering Units

Zero Clearance H-Seals allow the mating glands to bottom against each other. This means finished-assembly stack-up dimensions are the same whether an H-Seal or an elastomeric O-ring is used in the gland. The H-Seal is self-centering. Check the Assembly & Compression columns to the right for tooth penetration values.

Gap H-Seals provide a positive compression stop for the mating glands. The glands bottom against the H-Seal and leave a gap between parts that can be used for leak checking. Note the Assembly & Compression columns to the right for gap dimensions.



Tooth depth of penetration per side

Web material remaining after penetration after compression

Web material remaining after penetration after compression

H-Seal OD, Step ID and ID Basic Dimensions				Zero Clearance H-Seals			Gap H-Seals			H-Gland							Assembly & Compression			Interchangeable Elastomeric O-Ring Dimensions																
OD ±.03	Step ID ±.03	H-Seal ID ±.03	Flange Cross Section Width	Zero Clearance H-Seal Part Number	H-Seal Flange Thickness +00 / -.03	Sealing surface: recess depth per side +.03 / -.00	Web Thickness ±.03	Gap H-Seal Part Number	H-Seal Flange Thickness +00 / -.03	Sealing surface: recess depth per side +.03 / -.00	Web Thickness ±.03	H-Gland OD ±.02	H-Seal OD Clearance: (Gland OD - H-Seal OD)	H-Gland ID (max recommended = H-Seal ID)	H-Gland Depth +00 / -.001	Tooth Apex Diameter ±.001	Tooth Base ID (calculated) 60° included angle tooth	Tooth Base OD = O-Ring Gland ID	Tooth Base Width (calculated)	Tooth Height +00 / -.000	Tooth Clearance to Free Surface (ref)	For both Zero Clearance and Gap H-Seals	Web material remaining after penetration after compression	Clearance between parts after compression	Web material remaining after penetration after compression	Clearance between parts after compression	Parker Hannifin Part Number	ID	OD	Cross Section	ID (Mean ID of O-Ring, Ref)	ID max (ID min + 1% of Mean ID)	Gland (through) Width for Vacuum & Gases	Gland (through) Depth - from Parker Hannifin (English units)	OD min (calculated from tolerance range)	OD max (calculated from tolerance range)
21.62	16.69	11.66	2.46	HZ-114	1.93	0.43	1.07	H-114	2.34	0.43	1.47	21.87	0.25	11.66	0.99	14.83	14.04	15.62	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-114	15.54	20.78	2.62	15.54	15.70	3.12	.074-.080	21.79	21.95
23.20	18.26	13.25	2.47	HZ-115	1.93	0.43	1.07	H-115	2.34	0.43	1.47	23.45	0.25	13.25	0.99	16.41	15.62	17.21	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-115	17.12	22.35	2.62	17.12	17.29	3.12	.074-.080	23.37	23.54
24.81	19.86	14.85	2.47	HZ-116	1.93	0.43	1.07	H-116	2.34	0.43	1.47	25.06	0.25	14.85	0.99	18.02	17.23	18.81	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-116	18.72	23.95	2.62	18.72	18.91	3.12	.074-.080	24.97	25.16
26.39	21.44	16.44	2.48	HZ-117	1.93	0.43	1.07	H-117	2.34	0.43	1.47	26.64	0.25	16.44	0.99	19.60	18.81	20.40	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-117	20.29	25.53	2.62	20.29	20.50	3.12	.074-.080	26.54	26.75
27.74	23.04	18.04	2.35	HZ-118	1.93	0.43	1.07	H-118	2.34	0.43	1.47	28.25	0.51	18.04	0.99	21.21	20.42	22.00	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-118	21.89	27.13	2.62	21.89	22.11	3.12	.074-.080	28.14	28.36
29.33	24.61	19.63	2.36	HZ-119	1.93	0.43	1.07	H-119	2.34	0.43	1.47	29.84	0.51	19.63	0.99	22.79	22.00	23.59	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-119	23.47	28.70	2.62	23.47	23.70	3.12	.074-.080	29.72	29.95
30.94	26.21	21.24	2.36	HZ-120	1.93	0.43	1.07	H-120	2.34	0.43	1.47	31.44	0.51	21.24	0.99	24.40	23.61	25.20	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-120	25.07	30.30	2.62	25.07	25.32	3.12	.074-.080	31.32	31.57
32.52	27.79	22.82	2.37	HZ-121	1.93	0.43	1.07	H-121	2.34	0.43	1.47	33.03	0.51	22.82	0.99	25.99	25.19	26.78	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-121	26.64	31.88	2.62	26.64	26.91	3.12	.074-.080	32.89	33.16
34.13	29.39	24.43	2.37	HZ-122	1.93	0.43	1.07	H-122	2.34	0.43	1.47	34.63	0.51	24.43	0.99	27.59	26.80	28.39	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-122	28.24	33.48	2.62	28.24	28.53	3.12	.074-.080	34.49	34.78
35.71	30.96	26.01	2.37	HZ-123	1.93	0.43	1.07	H-123	2.34	0.43	1.47	36.22	0.51	26.01	0.99	29.18	28.38	29.97	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-123	29.82	35.05	2.62	29.82	30.12	3.12	.074-.080	36.07	36.37
37.32	32.56	27.62	2.38	HZ-124	1.93	0.43	1.07	H-124	2.34	0.43	1.47	37.83	0.51	27.62	0.99	30.78	29.99	31.58	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-124	31.42	36.65	2.62	31.42	31.73	3.12	.074-.080	37.67	37.98
38.90	34.14	29.20	2.38	HZ-125	1.93	0.43	1.07	H-125	2.34	0.43	1.47	39.41	0.51	29.20	0.99	32.37	31.58	33.16	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-125	32.99	38.23	2.62	32.99	33.32	3.12	.074-.080	39.24	39.57
40.51	35.74	30.81	2.39	HZ-126	1.93	0.43	1.07	H-126	2.34	0.43	1.47	41.02	0.51	30.81	0.99	33.98	33.18	34.77	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-126	34.59	39.83	2.62	34.59	34.94	3.12	.074-.080	40.84	41.19
42.09	37.31	32.39	2.39	HZ-127	1.93	0.43	1.07	H-127	2.34	0.43	1.47	42.60	0.51	32.39	0.99	35.56	34.77	36.35	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-127	36.17	41.40	2.62	36.17	36.53	3.12	.074-.080	42.42	42.78
43.70	38.91	34.00	2.39	HZ-128	1.93	0.43	1.07	H-128	2.34	0.43	1.47	44.21	0.51	34.00	0.99	37.17	36.37	37.96	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-128	37.77	43.00	2.62	37.77	38.15	3.12	.074-.080	44.02	44.40
45.28	40.49	35.58	2.40	HZ-129	1.93	0.43	1.07	H-129	2.34	0.43	1.47	45.79	0.51	35.58	0.99	38.75	37.96	39.54	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-129	39.34	44.58	2.62	39.34	39.74	3.12	.074-.080	45.59	45.99
46.89	42.09	37.19	2.40	HZ-130	1.93	0.43	1.07	H-130	2.34	0.43	1.47	47.40	0.51	37.19	0.99	40.36	39.57	41.15	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-130	40.94	46.18	2.62	40.94	41.35	3.12	.074-.080	47.19	47.60
48.47	43.66	38.77	2.40	HZ-131	1.93	0.43	1.07	H-131	2.34	0.43	1.47	48.98	0.51	38.77	0.99	41.94	41.15	42.73	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-131	42.52	47.75	2.62	42.52	42.94	3.12	.074-.080	48.77	49.19
50.08	45.26	40.38	2.41	HZ-132	1.93	0.43	1.07	H-132	2.34	0.43	1.47	50.59	0.51	40.38	0.99	43.55	42.76	44.34	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-132	44.12	49.35	2.62	44.12	44.56	3.12	.074-.080	50.37	50.81
51.66	46.84	41.96	2.41	HZ-133	1.93	0.43	1.07	H-133	2.34	0.43	1.47	52.17	0.51	41.96	0.99	45.13	44.34	45.92	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-133	45.69	50.93	2.62	45.69	46.15	3.12	.074-.080	51.94	52.40
53.27	48.44	43.57	2.42	HZ-134	1.93	0.43	1.07	H-134	2.34	0.43	1.47	53.78	0.51	43.57	0.99	46.74	45.95	47.53	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-134	47.29	52.53	2.62	47.29	47.77	3.12	.074-.080	53.54	54.02
54.88	50.04	45.18	2.42	HZ-135	1.93	0.43	1.07	H-135	2.34	0.43	1.47	55.39	0.51	45.18	0.99	48.35	47.56	49.14	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-135	48.90	54.13	2.62	48.90	49.38	3.12	.074-.080	55.14	55.63
56.46	51.61	46.76	2.42	HZ-136	1.93	0.43	1.07	H-136	2.34	0.43	1.47	56.97	0.51	46.76	0.99	49.93	49.14	50.72	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-136	50.47	55.70	2.62	50.47	50.97	3.12	.074-.080	56.72	57.22
58.07	53.21	48.37	2.43	HZ-137	1.93	0.43	1.07	H-137	2.34	0.43	1.47	58.58	0.51	48.37	0.99	51.54	50.75	52.33	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-137	52.07	57.30	2.62	52.07	52.59	3.12	.074-.080	58.32	58.84
59.65	54.79	49.95	2.43	HZ-138	1.93	0.43	1.07	H-138	2.34	0.43	1.47	60.16	0.51	49.95	0.99	53.12	52.33	53.91	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-138	53.64	58.88	2.62	53.64	54.18	3.12	.074-.080	59.89	60.43
61.26	56.39	51.56	2.44	HZ-139	1.93	0.43	1.07	H-139	2.34	0.43	1.47	61.77	0.51	51.56	0.99	54.73	53.94	55.52	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-139	55.25	60.48	2.62	55.25	55.80	3.12	.074-.080	61.49	62.05
62.84	57.96	53.14	2.44	HZ-140	1.93	0.43	1.07	H-140	2.34	0.43	1.47	63.35	0.51	53.14	0.99	56.31	55.52	57.10	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-140	56.82	62.05	2.62	56.82	57.39	3.12	.074-.080	63.07	63.64
64.45	59.56	54.75	2.44	HZ-141	1.93	0.43	1.07	H-141	2.34	0.43	1.47	64.96	0.51	54.75	0.99	57.92	57.13	58.71	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-141	58.42	63.65	2.62	58.42	59.00	3.12	.074-.080	64.67	65.25
66.04	61.14	56.33	2.45	HZ-142	1.93	0.43	1.07	H-142	2.34	0.43	1.47	66.54	0.51	56.33	0.99	59.50	58.71	60.29	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-142	59.99	65.23	2.62	59.99	60.59	3.12	.074-.080	66.24	66.84
67.64	62.74	57.94	2.45	HZ-143	1.93	0.43	1.07	H-143	2.34	0.43	1.47	68.15	0.51	57.94	0.99	61.11	60.32	61.90	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-143	61.60	66.83	2.62	61.60	62.21	3.12	.074-.080	67.84	68.46
69.23	64.31	59.53	2.46	HZ-144	1.93	0.43	1.07	H-144	2.34	0.43	1.47	69.73	0.51	59.53	0.99	62.69	61.90	63.49																		

## H-Seal and H-Gland Dimensions Metric - October 2015

### H-Seal OD, Step ID and ID Basic Dimensions

### Zero Clearance H-Seals

### Gap H-Seals

### H-Gland

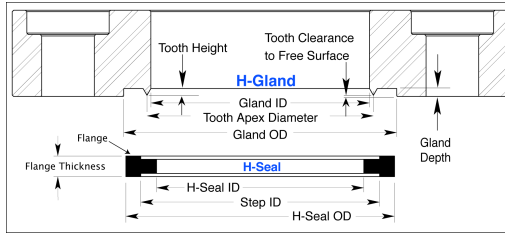
### Assembly & Compression

### Interchangeable Elastomeric O-Ring Dimensions

# SI (metric) Engineering Units

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Gap H-Seals provide a positive compression stop for the mating glands. The glands bottom against the H-Seal and leave a gap between parts that can be used for leak checking. Note the Assembly & Compression columns to the right for gap dimensions.



Tooth depth of penetration per side

For both Zero Clearance and Gap H-Seals

Web material remaining after penetration

Clearance between parts after compression

Web material remaining after penetration

Clearance between parts after compression

H-Seal OD, Step ID and ID Basic Dimensions			Zero Clearance H-Seals			Gap H-Seals			H-Gland										Assembly & Compression			Interchangeable Elastomeric O-Ring Dimensions														
OD ±.03	Step ID ±.03	H-Seal ID ±.03	Flange Cross Section Width	Zero Clearance H-Seal Part Number	H-Seal Flange Thickness +.00 / -.03	Sealing surface: recess depth per side +.03 / -.00	Web Thickness ±.03	Gap H-Seal Part Number	H-Seal Flange Thickness +.00 / -.03	Sealing surface: recess depth per side +.03 / -.00	Web Thickness ±.03	H-Gland OD ±.02	H-Seal OD Clearance: (Gland OD - H-Seal OD)	H-Gland ID (max recommended = H-Seal ID)	H-Gland Depth +.00 / -.001	Tooth Apex Diameter ±.001	Tooth Base ID (calculated) 60° included angle tooth	Tooth Base OD = O-Ring Gland ID	Tooth Base Width (calculated)	Tooth Height +.003 / -.000	Tooth Clearance to Free Surface (ref)	For both Zero Clearance and Gap H-Seals	Web material remaining after penetration	Clearance between parts after compression	Web material remaining after penetration	Clearance between parts after compression	Parker Hannifin Part Number	ID	OD	Cross Section	ID (Mean ID of O-Ring, Ref)	ID max (ID min + 1% of Mean ID)	Gland (trough) Width for Vacuum & Gases	Gland (trough) Depth - from Parker Hannifin (English units)	OD min (calculated from tolerance range)	OD max (calculated from tolerance range)
133.04	128.57	123.34	2.23	HZ-159	1.93	0.43	1.07	H-159	2.34	0.43	1.47	133.55	0.51	123.34	0.99	126.51	125.72	127.30	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-159	126.67	131.90	2.62	126.67	127.94	3.12	.074-.080	132.92	134.18
139.43	134.92	129.73	2.25	HZ-160	1.93	0.43	1.07	H-160	2.34	0.43	1.47	139.93	0.51	129.73	0.99	132.89	132.10	133.68	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-160	133.02	138.25	2.62	133.02	134.35	3.12	.074-.080	139.27	140.60
145.81	141.27	136.11	2.27	HZ-161	1.93	0.43	1.07	H-161	2.34	0.43	1.47	146.32	0.51	136.11	0.99	139.27	138.48	140.07	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-161	139.37	144.60	2.62	139.37	140.76	3.12	.074-.080	145.62	147.01
152.19	147.62	142.49	2.28	HZ-162	1.93	0.43	1.07	H-162	2.34	0.43	1.47	152.70	0.51	142.49	0.99	145.66	144.86	146.45	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-162	145.72	150.95	2.62	145.72	147.18	3.12	.074-.080	151.97	153.43
158.57	153.97	148.87	2.30	HZ-163	1.93	0.43	1.07	H-163	2.34	0.43	1.47	159.08	0.51	148.87	0.99	152.04	151.25	152.83	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-163	152.07	157.30	2.62	152.07	153.59	3.12	.074-.080	158.32	159.84
164.95	160.32	155.25	2.31	HZ-164	1.93	0.43	1.07	H-164	2.34	0.43	1.47	165.46	0.51	155.25	0.99	158.42	157.63	159.21	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-164	158.42	163.65	2.62	158.42	160.00	3.12	.074-.080	164.67	166.25
171.33	166.67	161.63	2.33	HZ-165	1.93	0.43	1.07	H-165	2.34	0.43	1.47	171.84	0.51	161.63	0.99	164.80	164.01	165.59	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-165	164.77	170.00	2.62	164.77	166.42	3.12	.074-.080	171.02	172.67
177.72	173.02	168.02	2.35	HZ-166	1.93	0.43	1.07	H-166	2.34	0.43	1.47	178.22	0.51	168.02	0.99	171.18	170.39	171.98	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-166	171.12	176.35	2.62	171.12	172.83	3.12	.074-.080	177.37	179.08
184.10	179.37	174.40	2.36	HZ-167	1.93	0.43	1.07	H-167	2.34	0.43	1.47	184.61	0.51	174.40	0.99	177.57	176.77	178.36	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-167	177.47	182.70	2.62	177.47	179.24	3.12	.074-.080	183.72	185.49
190.48	185.72	180.78	2.38	HZ-168	1.93	0.43	1.07	H-168	2.34	0.43	1.47	190.99	0.51	180.78	0.99	183.95	183.15	184.74	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-168	183.82	189.05	2.62	183.82	185.66	3.12	.074-.080	190.07	191.91
196.86	192.07	187.16	2.39	HZ-169	1.93	0.43	1.07	H-169	2.34	0.43	1.47	197.37	0.51	187.16	0.99	190.33	189.54	191.12	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-169	190.17	195.40	2.62	190.17	192.07	3.12	.074-.080	196.42	198.32
203.24	198.42	193.54	2.41	HZ-170	1.93	0.43	1.07	H-170	2.34	0.43	1.47	203.75	0.51	193.54	0.99	196.71	195.92	197.50	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-170	196.52	201.75	2.62	196.52	198.48	3.12	.074-.080	202.77	204.73
209.62	204.77	199.92	2.42	HZ-171	1.93	0.43	1.07	H-171	2.34	0.43	1.47	210.13	0.51	199.92	0.99	203.09	202.30	203.88	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-171	202.87	208.10	2.62	202.87	204.90	3.12	.074-.080	209.12	211.15
216.01	211.12	206.31	2.44	HZ-172	1.93	0.43	1.07	H-172	2.34	0.43	1.47	216.51	0.51	206.31	0.99	209.47	208.68	210.27	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-172	209.22	214.45	2.62	209.22	211.31	3.12	.074-.080	215.47	217.56
222.39	217.47	212.69	2.46	HZ-173	1.93	0.43	1.07	H-173	2.34	0.43	1.47	222.90	0.51	212.69	0.99	215.86	215.06	216.65	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-173	215.57	220.80	2.62	215.57	217.73	3.12	.074-.080	221.82	223.97
228.77	223.82	219.07	2.47	HZ-174	1.93	0.43	1.07	H-174	2.34	0.43	1.47	229.28	0.51	219.07	0.99	222.24	221.45	223.03	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-174	221.92	227.15	2.62	221.92	224.14	3.12	.074-.080	228.17	230.39
235.15	230.17	225.45	2.49	HZ-175	1.93	0.43	1.07	H-175	2.34	0.43	1.47	235.66	0.51	225.45	0.99	228.62	227.83	229.41	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-175	228.27	233.50	2.62	228.27	230.55	3.12	.074-.080	234.52	236.80
241.53	236.52	231.83	2.50	HZ-176	1.93	0.43	1.07	H-176	2.34	0.43	1.47	242.04	0.51	231.83	0.99	235.00	234.21	235.79	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-176	234.62	239.85	2.62	234.62	236.97	3.12	.074-.080	240.87	243.21
247.92	242.87	238.21	2.52	HZ-177	1.93	0.43	1.07	H-177	2.34	0.43	1.47	248.42	0.51	238.21	0.99	241.38	240.59	242.17	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-177	240.97	246.20	2.62	240.97	243.38	3.12	.074-.080	247.22	249.63
254.30	249.22	244.60	2.54	HZ-178	1.93	0.43	1.07	H-178	2.34	0.43	1.47	254.80	0.51	244.60	0.99	247.76	246.97	248.56	0.79	0.69	0.30	0.25	0.56	0.00	0.97	0.36	2-178	247.32	252.55	2.62	247.32	249.79	3.12	.074-.080	253.57	256.04
34.17	28.47	21.71	2.85	HZ-215	2.57	0.61	1.35	H-215	3.10	0.61	1.88	34.88	0.71	21.71	1.32	25.70	24.70	26.70	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-215	26.57	33.63	3.53	26.57	28.83	4.09	.101-.107	34.75	35.01
35.78	30.07	23.32	2.85	HZ-216	2.57	0.61	1.35	H-216	3.10	0.61	1.88	36.49	0.71	23.32	1.32	27.31	26.31	28.31	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-216	28.17	35.23	3.53	28.17	28.45	4.09	.101-.107	36.35	36.63
37.36	31.65	24.90	2.86	HZ-217	2.57	0.61	1.35	H-217	3.10	0.61	1.88	38.07	0.71	24.90	1.32	28.89	27.90	29.89	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-217	29.74	36.80	3.53	29.74	30.04	4.09	.101-.107	37.92	38.22
38.97	33.25	26.51	2.86	HZ-218	2.57	0.61	1.35	H-218	3.10	0.61	1.88	39.68	0.71	26.51	1.32	30.50	29.50	31.50	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-218	31.34	38.40	3.53	31.34	31.66	4.09	.101-.107	39.52	39.84
40.55	34.82	28.09	2.86	HZ-219	2.57	0.61	1.35	H-219	3.10	0.61	1.88	41.26	0.71	28.09	1.32	32.08	31.09	33.08	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-219	32.92	39.98	3.53	32.92	33.25	4.09	.101-.107	41.10	41.43
42.16	36.42	29.70	2.87	HZ-220	2.57	0.61	1.35	H-220	3.10	0.61	1.88	42.87	0.71	29.70	1.32	33.69	32.69	34.69	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-220	34.52	41.58	3.53	34.52	34.86	4.09	.101-.107	42.70	43.04
43.74	38.00	31.28	2.87	HZ-221	2.57	0.61	1.35	H-221	3.10	0.61	1.88	44.45	0.71	31.28	1.32	35.28	34.28	36.27	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-221	36.09	43.15	3.53	36.09	36.45	4.09	.101-.107	44.27	44.63
45.35	39.60	32.89	2.88	HZ-222	2.57	0.61	1.35	H-222	3.10	0.61	1.88	46.06	0.71	32.89	1.32	36.88	35.89	37.88	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-222	37.69	44.75	3.53	37.69	38.07	4.09	.101-.107	45.87	46.25
48.54	42.77	36.08	2.88	HZ-223	2.57	0.61	1.35	H-223	3.10	0.61	1.88	49.25	0.71	36.08	1.32	40.07	39.08	41.07	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-223	40.87	47.93	3.53	40.87	41.28	4.09	.101-.107	49.05	49.46
51.73	45.95	39.27	2.89	HZ-224	2.57	0.61	1.35	H-224	3.10	0.61	1.88																									

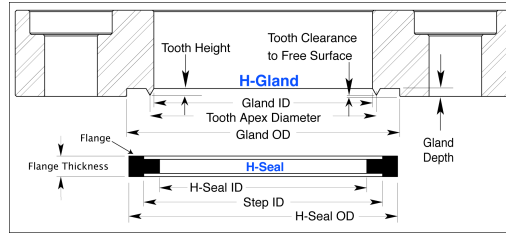
# H-Seal and H-Gland Dimensions Metric - October 2015

## H-Seal OD, Step ID and ID Basic Dimensions

### SI (metric) Engineering Units

Zero Clearance H-Seals allow the mating glands to bottom against each other. This means finished-assembly stack-up dimensions are the same whether an H-Seal or an elastomeric O-ring is used in the gland. The H-Seal is self-centering. Check the Assembly & Compression columns to the right for tooth penetration values.

Gap H-Seals provide a positive compression stop for the mating glands. The glands bottom against the H-Seal and leave a gap between parts that can be used for leak checking. Note the Assembly & Compression columns to the right for gap dimensions.



Tooth depth of penetration per side

For both Zero Clearance and Gap H-Seals

Web material remaining after penetration

Clearance between parts after compression

Web material remaining after penetration

Clearance between parts after compression

Zero-Clearance H-Seals

Gap H-Seals

## Interchangeable Elastomeric O-Ring Dimensions

### O-Ring O-Ring Face Seal Gland Dimensions

OD ±.03	Step ID ±.03	H-Seal ID ±.03	Flange Cross Section Width	Zero Clearance H-Seal Part Number	H-Seal Flange Thickness +00 / -.03	Sealing surface: recess depth per side +.03 / -.00	Web Thickness ±.03	Gap H-Seal Part Number	H-Seal Flange Thickness +00 / -.03	Sealing surface: recess depth per side +.03 / -.00	Web Thickness ±.03	H-Gland OD ±0.02	H-Seal OD Clearance: (Gland OD - H-Seal OD)	H-Gland ID (max recommended H-Seal ID)	H-Gland Depth +00 / -.001	Tooth Apex Diameter ±0.01	Tooth Base ID (calculated) 60° included angle tooth	Tooth Base OD = O-Ring Gland ID	Tooth Base Width (calculated)	Tooth Height +00 / -.000	Tooth Clearance to Free Surface (ref)	For both Zero Clearance and Gap H-Seals	Web material remaining after penetration	Clearance between parts after compression	Web material remaining after penetration	Clearance between parts after compression	Parker Hannifin Part Number	ID	OD	Cross Section	ID (Mean ID of O-Ring, Ref)	ID max (ID min + 1% of Mean ID)	Gland (through) Width for Vacuum & Gases	Gland (through) Depth - from Parker Hannifin (English units)	OD min (calculated from tolerance range)	OD max (calculated from tolerance range)
99.59	93.57	87.14	3.01	HZ-239	2.57	0.61	1.35	H-239	3.10	0.61	1.88	100.31	0.71	87.14	1.32	91.13	90.13	92.13	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-239	91.67	98.73	3.53	91.67	92.59	4.09	.101-.107	99.85	100.76
102.79	96.75	90.33	3.02	HZ-240	2.57	0.61	1.35	H-240	3.10	0.61	1.88	103.50	0.71	90.33	1.32	94.32	93.32	95.32	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-240	94.84	101.90	3.53	94.84	95.79	4.09	.101-.107	103.02	103.97
105.98	99.92	93.52	3.03	HZ-241	2.57	0.61	1.35	H-241	3.10	0.61	1.88	106.69	0.71	93.52	1.32	97.51	96.51	98.51	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-241	98.02	105.08	3.53	98.02	99.00	4.09	.101-.107	106.20	107.18
109.17	103.10	96.71	3.03	HZ-242	2.57	0.61	1.35	H-242	3.10	0.61	1.88	109.88	0.71	96.71	1.32	100.70	99.70	101.70	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-242	101.19	108.25	3.53	101.19	102.21	4.09	.101-.107	109.37	110.38
112.36	106.27	99.90	3.04	HZ-243	2.57	0.61	1.35	H-243	3.10	0.61	1.88	113.07	0.71	99.90	1.32	103.89	102.89	104.89	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-243	104.37	111.43	3.53	104.37	105.41	4.09	.101-.107	112.55	113.59
115.55	109.45	103.09	3.05	HZ-244	2.57	0.61	1.35	H-244	3.10	0.61	1.88	116.26	0.71	103.09	1.32	107.08	106.08	108.08	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-244	107.54	114.60	3.53	107.54	108.62	4.09	.101-.107	115.72	116.80
118.74	112.62	106.28	3.06	HZ-245	2.57	0.61	1.35	H-245	3.10	0.61	1.88	119.45	0.71	106.28	1.32	110.27	109.28	111.27	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-245	110.72	117.78	3.53	110.72	111.83	4.09	.101-.107	118.90	120.00
121.93	115.80	109.47	3.07	HZ-246	2.57	0.61	1.35	H-246	3.10	0.61	1.88	122.64	0.71	109.47	1.32	113.46	112.47	114.46	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-246	113.89	120.95	3.53	113.89	115.03	4.09	.101-.107	122.07	123.21
125.12	118.97	112.66	3.07	HZ-247	2.57	0.61	1.35	H-247	3.10	0.61	1.88	125.83	0.71	112.66	1.32	116.66	115.66	117.65	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-247	117.07	124.13	3.53	117.07	118.24	4.09	.101-.107	125.25	126.42
128.31	122.15	115.85	3.08	HZ-248	2.57	0.61	1.35	H-248	3.10	0.61	1.88	129.02	0.71	115.85	1.32	119.85	118.85	120.84	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-248	120.24	127.30	3.53	120.24	121.45	4.09	.101-.107	128.42	129.62
131.50	125.32	119.04	3.09	HZ-249	2.57	0.61	1.35	H-249	3.10	0.61	1.88	132.21	0.71	119.04	1.32	123.04	122.04	124.04	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-249	123.42	130.48	3.53	123.42	124.65	4.09	.101-.107	131.60	132.83
134.69	128.50	122.24	3.10	HZ-250	2.57	0.61	1.35	H-250	3.10	0.61	1.88	135.41	0.71	122.24	1.32	126.23	125.23	127.23	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-250	126.59	133.65	3.53	126.59	127.86	4.09	.101-.107	134.77	136.04
137.89	131.67	125.43	3.11	HZ-251	2.57	0.61	1.35	H-251	3.10	0.61	1.88	138.60	0.71	125.43	1.32	129.42	128.42	130.42	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-251	129.77	136.83	3.53	129.77	131.07	4.09	.101-.107	137.95	139.25
141.08	134.85	128.62	3.11	HZ-252	2.57	0.61	1.35	H-252	3.10	0.61	1.88	141.79	0.71	128.62	1.32	132.61	131.61	133.61	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-252	132.94	140.00	3.53	132.94	134.27	4.09	.101-.107	141.12	142.45
144.27	138.02	131.81	3.12	HZ-253	2.57	0.61	1.35	H-253	3.10	0.61	1.88	144.98	0.71	131.81	1.32	135.80	134.80	136.80	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-253	136.12	143.18	3.53	136.12	137.48	4.09	.101-.107	144.30	145.66
147.46	141.20	135.00	3.13	HZ-254	2.57	0.61	1.35	H-254	3.10	0.61	1.88	148.17	0.71	135.00	1.32	138.99	137.99	139.99	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-254	139.29	146.35	3.53	139.29	140.69	4.09	.101-.107	147.47	148.87
150.65	144.37	138.19	3.14	HZ-255	2.57	0.61	1.35	H-255	3.10	0.61	1.88	151.36	0.71	138.19	1.32	142.18	141.18	143.18	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-255	142.47	149.53	3.53	142.47	143.89	4.09	.101-.107	150.65	152.07
153.84	147.55	141.38	3.15	HZ-256	2.57	0.61	1.35	H-256	3.10	0.61	1.88	154.55	0.71	141.38	1.32	145.37	144.38	146.37	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-256	145.64	152.70	3.53	145.64	147.10	4.09	.101-.107	153.82	155.28
157.03	150.72	144.57	3.15	HZ-257	2.57	0.61	1.35	H-257	3.10	0.61	1.88	157.74	0.71	144.57	1.32	148.56	147.57	149.56	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-257	148.82	155.88	3.53	148.82	150.31	4.09	.101-.107	157.00	158.49
160.22	153.90	147.76	3.16	HZ-258	2.57	0.61	1.35	H-258	3.10	0.61	1.88	160.93	0.71	147.76	1.32	151.76	150.76	152.76	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-258	151.99	159.05	3.53	151.99	153.51	4.09	.101-.107	160.17	161.69
166.60	160.76	154.14	2.92	HZ-259	2.57	0.61	1.35	H-259	3.10	0.61	1.88	167.31	0.71	154.14	1.32	158.14	157.14	159.14	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-259	158.34	165.40	3.53	158.34	159.93	4.09	.101-.107	166.52	168.11
172.98	167.11	160.53	2.94	HZ-260	2.57	0.61	1.35	H-260	3.10	0.61	1.88	173.70	0.71	160.53	1.32	164.52	163.52	165.52	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-260	164.69	171.75	3.53	164.69	166.34	4.09	.101-.107	172.87	174.52
179.37	173.46	166.91	2.95	HZ-261	2.57	0.61	1.35	H-261	3.10	0.61	1.88	180.08	0.71	166.91	1.32	170.90	169.90	171.90	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-261	171.04	178.10	3.53	171.04	172.75	4.09	.101-.107	179.22	180.93
185.75	179.81	173.29	2.97	HZ-262	2.57	0.61	1.35	H-262	3.10	0.61	1.88	186.46	0.71	173.29	1.32	177.28	176.28	178.28	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-262	177.39	184.45	3.53	177.39	179.17	4.09	.101-.107	185.57	187.35
192.13	186.16	179.67	2.99	HZ-263	2.57	0.61	1.35	H-263	3.10	0.61	1.88	192.84	0.71	179.67	1.32	183.66	182.67	184.66	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-263	183.74	190.80	3.53	183.74	185.58	4.09	.101-.107	191.92	193.76
198.51	192.51	186.05	3.00	HZ-264	2.57	0.61	1.35	H-264	3.10	0.61	1.88	199.22	0.71	186.05	1.32	190.05	189.05	191.04	1.00	0.86	0.46	0.25	0.84	0.00	1.37	0.46	2-264	190.09	197.15	3.53	190.09	191.99	4.09	.101-.107	198.27	200.17
204.89	198.86	192.43	3.02	HZ-265	2.57	0.61	1.35	H-265	3.10	0.61	1.88	205.60	0.71	192.43	1.32	196.43	195.43	197.43	1.00	0.86	0.46	0.25	0.84	0												

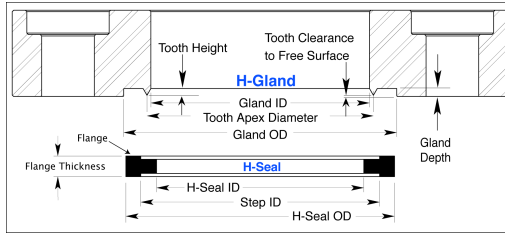
## H-Seal and H-Gland Dimensions Metric - October 2015

H-Seal OD, Step ID and ID Basic Dimensions	Zero Clearance H-Seals	Gap H-Seals	H-Gland	Assembly & Compression	Interchangeable Elastomeric O-Ring Dimensions
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### SI (metric) Engineering Units

Zero Clearance H-Seals allow the mating glands to bottom against each other. This means finished-assembly stack-up dimensions are the same whether an H-Seal or an elastomeric o-ring is used in the gland. The H-Seal is self-centering. Check the Assembly & Compression columns to the right for tooth penetration values.

Gap H-Seals provide a positive compression stop for the mating glands. The glands bottom against the H-Seal and leave a gap between parts that can be used for leak checking. Note the Assembly & Compression columns to the right for gap dimensions.



Tooth depth of penetration per side

Zero-Clearance H-Seals

Gap H-Seals

OD ±.03	Step ID ±.03	H-Seal ID ±.03	Flange Cross Section Width	Zero Clearance H-Seal Part Number	H-Seal Flange Thickness +00 / -.03	Sealing surface: recess depth per side +.03 / -.00	Web Thickness ±.03	Gap H-Seal Part Number	H-Seal Flange Thickness +00 / -.03	Sealing surface: recess depth per side +.03 / -.00	Web Thickness ±.03	H-Gland OD ±.002	H-Seal OD Clearance: (Gland OD - H-Seal OD) (max recommended = H-Seal ID)	H-Gland ID	H-Gland Depth +00 / -.001	Tooth Apex Diameter ±.001	Tooth Base ID (calculated) 60° included angle tooth	Tooth Base OD = O-Ring Gland ID	Tooth Base Width (calculated)	Tooth Height +003 / -.000	Tooth Clearance to Free Surface (ref)	For both Zero Clearance and Gap H-Seals	Web material remaining after penetration	Clearance between parts after compression	Web material remaining after penetration	Clearance between parts after compression
221.31	211.46	201.16	4.93	<b>HZ-370</b>	3.91	1.27	1.37	<b>H-370</b>	4.70	1.27	2.16	222.20	0.89	201.16	2.03	208.20	206.44	209.96	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
227.70	217.81	207.54	4.95	<b>HZ-371</b>	3.91	1.27	1.37	<b>H-371</b>	4.70	1.27	2.16	228.58	0.89	207.54	2.03	214.58	212.82	216.34	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
234.08	224.16	213.92	4.96	<b>HZ-372</b>	3.91	1.27	1.37	<b>H-372</b>	4.70	1.27	2.16	234.97	0.89	213.92	2.03	220.96	219.20	222.72	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
240.46	230.51	220.31	4.98	<b>HZ-373</b>	3.91	1.27	1.37	<b>H-373</b>	4.70	1.27	2.16	241.35	0.89	220.31	2.03	227.35	225.59	229.10	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
246.84	236.86	226.69	4.99	<b>HZ-374</b>	3.91	1.27	1.37	<b>H-374</b>	4.70	1.27	2.16	247.73	0.89	226.69	2.03	233.73	231.97	235.49	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
253.22	243.21	233.07	5.01	<b>HZ-375</b>	3.91	1.27	1.37	<b>H-375</b>	4.70	1.27	2.16	254.11	0.89	233.07	2.03	240.11	238.35	241.87	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
259.60	249.56	239.45	5.02	<b>HZ-376</b>	3.91	1.27	1.37	<b>H-376</b>	4.70	1.27	2.16	260.49	0.89	239.45	2.03	246.49	244.73	248.25	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
265.99	255.85	245.83	3.77	<b>HZ-377</b>	3.91	1.27	1.37	<b>H-377</b>	4.70	1.27	2.16	266.87	0.89	245.83	2.03	252.87	251.11	254.63	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
272.37	262.14	252.12	3.80	<b>HZ-378</b>	3.91	1.27	1.37	<b>H-378</b>	4.70	1.27	2.16	273.25	0.89	252.12	2.03	260.25	258.49	261.25	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
278.75	268.43	258.41	3.83	<b>HZ-379</b>	3.91	1.27	1.37	<b>H-379</b>	4.70	1.27	2.16	279.64	0.89	258.41	2.03	266.64	264.88	267.64	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
291.51	283.85	271.36	3.83	<b>HZ-380</b>	3.91	1.27	1.37	<b>H-380</b>	4.70	1.27	2.16	292.40	0.89	271.36	2.03	278.40	276.64	280.16	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
304.28	296.55	284.12	3.87	<b>HZ-381</b>	3.91	1.27	1.37	<b>H-381</b>	4.70	1.27	2.16	305.17	0.89	284.12	2.03	291.17	289.41	292.92	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
317.04	309.25	296.89	3.90	<b>HZ-382</b>	3.91	1.27	1.37	<b>H-382</b>	4.70	1.27	2.16	317.93	0.89	296.89	2.03	303.93	302.17	305.69	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
342.57	334.65	322.41	3.96	<b>HZ-383</b>	3.91	1.27	1.37	<b>H-383</b>	4.70	1.27	2.16	343.46	0.89	322.41	2.03	329.45	327.69	331.21	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
368.09	360.05	347.94	4.02	<b>HZ-384</b>	3.91	1.27	1.37	<b>H-384</b>	4.70	1.27	2.16	368.98	0.89	347.94	2.03	354.98	353.22	356.74	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
393.62	385.45	373.47	4.09	<b>HZ-385</b>	3.91	1.27	1.37	<b>H-385</b>	4.70	1.27	2.16	394.51	0.89	373.47	2.03	380.51	378.75	382.27	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
418.64	410.34	398.48	4.15	<b>HZ-386</b>	3.91	1.27	1.37	<b>H-386</b>	4.70	1.27	2.16	419.53	0.89	398.48	2.03	405.52	403.76	407.28	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
444.16	435.74	424.01	4.21	<b>HZ-387</b>	3.91	1.27	1.37	<b>H-387</b>	4.70	1.27	2.16	445.05	0.89	424.01	2.03	431.05	429.29	432.81	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
469.69	461.14	449.54	4.28	<b>HZ-388</b>	3.91	1.27	1.37	<b>H-388</b>	4.70	1.27	2.16	470.58	0.89	449.54	2.03	456.58	454.82	458.34	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
495.22	486.54	475.07	4.34	<b>HZ-389</b>	3.91	1.27	1.37	<b>H-389</b>	4.70	1.27	2.16	496.11	0.89	475.07	2.03	482.10	480.34	483.86	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
520.75	511.94	500.59	4.40	<b>HZ-390</b>	3.91	1.27	1.37	<b>H-390</b>	4.70	1.27	2.16	521.63	0.89	500.59	2.03	507.63	505.87	509.39	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
546.27	537.34	526.12	4.47	<b>HZ-391</b>	3.91	1.27	1.37	<b>H-391</b>	4.70	1.27	2.16	547.16	0.89	526.12	2.03	533.16	531.40	534.92	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
571.80	562.74	551.65	4.53	<b>HZ-392</b>	3.91	1.27	1.37	<b>H-392</b>	4.70	1.27	2.16	572.69	0.89	551.65	2.03	558.69	556.93	560.45	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
596.94	587.76	576.79	4.59	<b>HZ-393</b>	3.91	1.27	1.37	<b>H-393</b>	4.70	1.27	2.16	597.83	0.89	576.79	2.03	583.83	582.07	585.59	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
622.47	613.16	602.32	4.66	<b>HZ-394</b>	3.91	1.27	1.37	<b>H-394</b>	4.70	1.27	2.16	623.36	0.89	602.32	2.03	609.36	607.60	611.12	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
648.00	638.56	627.84	4.72	<b>HZ-395</b>	3.91	1.27	1.37	<b>H-395</b>	4.70	1.27	2.16	648.89	0.89	627.84	2.03	634.88	633.12	636.64	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64
673.52	663.96	653.37	4.78	<b>HZ-395</b>	3.91	1.27	1.37	<b>H-395</b>	4.70	1.27	2.16	674.41	0.89	653.37	2.03	660.41	658.65	662.17	1.76	1.52	0.51	0.25	0.86	0.00	1.65	0.64

Parker Hannifin Part Number	O-Ring			O-Ring Face Seal Gland Dimensions			
	ID	OD	Cross Section	ID (Mean ID of O-Ring, Ref)	ID max (ID min + 1% of Mean ID)	Gland (trough) Width for Vacuum & Gases	Gland (trough) Depth - from Parker Hannifin (English units)
<b>2-370</b>	208.92	219.58	5.33	208.92	211.00	6.12	.152-.162
<b>2-371</b>	215.27	225.93	5.33	215.27	217.42	6.12	.152-.162
<b>2-372</b>	221.62	232.28	5.33	221.62	223.83	6.12	.152-.162
<b>2-373</b>	227.97	238.63	5.33	227.97	230.24	6.12	.152-.162
<b>2-374</b>	234.32	244.98	5.33	234.32	236.66	6.12	.152-.162
<b>2-375</b>	240.67	251.33	5.33	240.67	243.07	6.12	.152-.162
<b>2-376</b>	247.02	257.68	5.33	247.02	249.49	6.12	.152-.162
<b>2-377</b>	253.37	264.03	5.33	253.37	255.90	6.12	.152-.162
<b>2-378</b>	266.07	276.73	5.33	266.07	268.73	6.12	.152-.162
<b>2-379</b>	278.77	289.43	5.33	278.77	281.55	6.12	.152-.162
<b>2-380</b>	291.47	302.13	5.33	291.47	294.38	6.12	.152-.162
<b>2-381</b>	304.17	314.83	5.33	304.17	307.21	6.12	.152-.162
<b>2-382</b>	329.57	340.23	5.33	329.57	332.86	6.12	.152-.162
<b>2-383</b>	354.97	365.63	5.33	354.97	358.51	6.12	.152-.162
<b>2-384</b>	380.37	391.03	5.33	380.37	384.17	6.12	.152-.162
<b>2-385</b>	405.26	415.93	5.33	405.26	409.31	6.12	.152-.162
<b>2-386</b>	430.66	441.33	5.33	430.66	434.96	6.12	.152-.162
<b>2-387</b>	456.06	466.73	5.33	456.06	460.62	6.12	.152-.162
<b>2-388</b>	481.46	492.13	5.33	481.46	486.27	6.12	.152-.162
<b>2-389</b>	506.86	517.53	5.33	506.86	511.93	6.12	.152-.162
<b>2-390</b>	532.26	542.93	5.33	532.26	537.58	6.12	.152-.162
<b>2-391</b>	557.66	568.33	5.33	557.66	563.23	6.12	.152-.162
<b>2-392</b>	582.68	593.34	5.33	582.68	588.50	6.12	.152-.162
<b>2-393</b>	608.08	618.74	5.33	608.08	614.16	6.12	.152-.162
<b>2-394</b>	633.48	644.14	5.33	633.48	639.81	6.12	.152-.162
<b>2-395</b>	658.88	669.54	5.33	658.88	665.46	6.12	.152-.162