

DANIEL® SIMPLEX ORIFICE FITTINGS PRODUCT GUIDE

DIFFERENTIAL PRESSURE FLOW METER



DANIEL®
Decades Proven. Field Chosen.™

SIMPLEX ORIFICE FITTING OVERVIEW

The Daniel Simplex Orifice Fitting allows for the inspection and replacement of an orifice plate without removing the fitting from the flow line, which saves downtime and operational cost. Simplex fittings reduce spillage that could occur in liquid service, by not having to remove the fitting from the flow line.

Operating the Simplex Orifice Fitting is easy due to its minimal parts. The plate carrier ring is permanently attached to the sealing bar so that the bar, ring, plate and seal unit can all be removed at the same time. The only other parts are the gasket, clamping bar with set screws and pipe plugs for taps and drain.

STANDARD SPECIFICATIONS

Please consult an Emerson product specialist if requirements fall outside the listed specifications. Other product and material offerings may be available depending on the application.

Mechanical ratings

Pressure rating by line size

- Standard: 2-in to 4-in, ANSI 600
- Optional: 2-in to 4-in, ANSI 900-2500

End connections

Body styles

- Flangnek raised face (FN/RF), Flangnek ring-type joint (FN/RTJ)

Differential pressure taps

Internal tap holes sizes

- Standard: In accordance with API 14.3 (AGA3)
- Optional: In accordance with ISO 5167

Process connection

- Standard: .50-in NPT standard
- Optional: Consult factory for other options

Telemetrying taps

- Standard on ANSI 600
- Not available in other ANSI classes

Line bore tolerances

- Standard size: Sch 40 and Sch 80
- Optional: Consult factory for other options

Quality assurances

- Hydrostatic test 1.50 times rated CWP
- Meets or exceeds API 14.3 requirements for positive plate seal, pressure tap integrity, seal protrusion and eccentricity

Temperature range

- Standard: -20°F to +200°F (-29°C to +93°C)
- Standard (low temperature): -50°F to +200°F (-46°C to +93°C)
- Consult factory for other options

Material specifications (body casting)

- Standard: A126 GR. WCB
- Standard (low temperature applications): A352 GR. LCC
- Consult factory for other options

Trim material

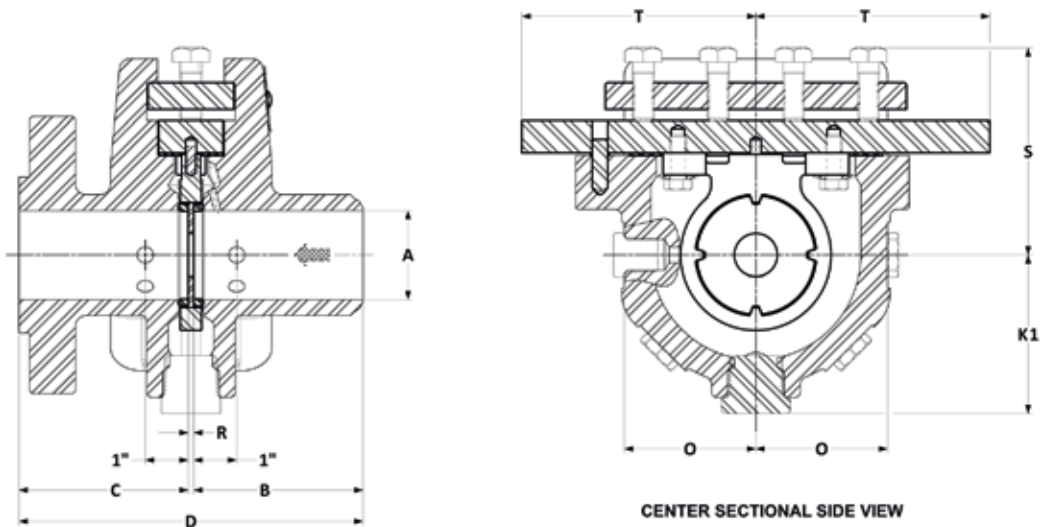
- Standard: NACE trim on 2-8-in 600#. A trim is used in all other models.
- Consult factory for other options

Flow measurement code

- Standard: API 14.3
- Optional: ISO-5167

Seal options

- DSC Dual Seal (NBR, HNBR, or Viton)
- TSC PTFE seal
- SSR Snap Seal Ring (Zinc plated carbon steel, 316SS, or Duplex)

SIMPLEX PARTS AND DIMENSIONS**FLANGNEK RAISED FACE**

CLASS 600 - FLANGNEK WITH RAISED FACE FLANGE

SIZE (IN)		2	3	4
Weight (lb)		46	70	100
Diameter internal line bore (in) ⁽¹⁾	A	2.07	3.07	4.03
Upstream face orifice plate to face of end (in)	B	3.94	4.44	4.94
Downstream face of orifice plate to face of flange (in)	C	3.94	4.44	4.94
Overall face to face (in)	D	8.00	9.00	10.00
Centerline to bottom (in)	K1	3.56	4.25	4.11
Number, diameter of studs per flange (in)		8,0.63	8,0.75	8,0.88
Length of studs with 2 Hex Nuts (in)		4.25	5.00	5.75
Center to face of meter tap hole (in)	O	3.06	3.62	4.28
Orifice plate thickness (in)	R	0.13	0.13	0.13
Centerline to top (in)	S	4.75	5.25	5.75
Operating clearance from center (in)	T	5.44	6.00	6.44

(1) Other bores available on special request.

CLASS 900 - FLANGNEK WITH RAISED FACE FLANGE

SIZE (IN)		2	3	4
Weight (lb)		70	80	125
Diameter internal line bore (in) ⁽¹⁾	A	1.939	2.900	3.826
Upstream face orifice plate to face of end (in)	B	5.31	5.44	5.81
Downstream face of orifice plate to face of flange (in)	C	5.31	5.44	5.81
Overall face to face (in)	D	10.75	11.00	11.75
Centerline to bottom (in)	K1	3.19	4.38	4.88
Number, diameter of studs per flange (in)		8,0.88	8,0.88	8,1.13
Length of studs with 2 Hex Nuts (in)		5.75	5.75	6.75
Center to face of meter tap hole (in)	O	3.44	3.75	4.38
Orifice plate thickness (in)	R	0.13	0.13	0.13
Centerline to top (in)	S	4.75	5.25	5.75
Operating clearance from center (in)	T	5.75	6.25	7.25

(1) Other bores available on special request.

CLASS 1500 - FLANGNEK WITH RAISED FACE FLANGE

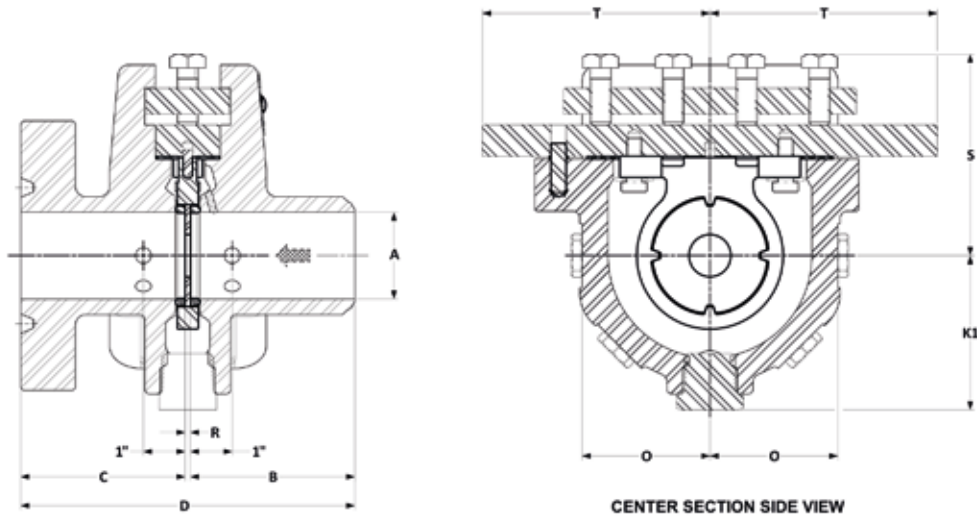
SIZE (IN)		2	3	4
Weight (lb)		65	125	208
Diameter internal line bore (in) ⁽¹⁾	A	1.939	2.900	3.826
Upstream face orifice plate to face of end (in)	B	5.18	6.44	7.00
Downstream face of orifice plate to face of flange (in)	C	5.81	6.44	7.00
Overall face to face (in)	D	11.75	13.00	14.13
Centerline to bottom (in)	K1	3.38	4.56	5.00
Number, diameter of studs per flange (in)		8, 0.88	8, 1.13	8, 1.25
Length of studs with 2 Hex Nuts (in)		5.75	7.00	7.75
Center to face of meter tap hole (in)	O	3.50	4.22	4.75
Orifice plate thickness (in)	R	0.13	0.13	0.13
Centerline to top (in)	S	5.56	6.06	6.56
Operating clearance from center (in)	T	6.25	6.88	8.00

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CLASS 2500 - FLANGNEK WITH STANDARD FLANGE

SIZE (IN)		2	3	4
Weight (lb)		80	185	285
Diameter internal line bore (in) ⁽¹⁾	A	1.687	2.624	3.438
Upstream face orifice plate to face of end (in)	B	6.44	7.31	8.06
Downstream face of orifice plate to face of flange (in)	C	6.44	7.31	8.12
Overall face to face (in)	D	13.00	14.75	16.11
Centerline to bottom (in)	K1	4.13	4.50	5.44
Number, diameter of studs per flange (in)		8, 1	8, 1.25	8, 1.5
Length of studs with 2 Hex Nuts (in)		7.00	8.75	10.00
Center to face of meter tap hole (in)	O	3.75	4.44	5.00
Orifice plate thickness (in)	R	0.13	0.13	0.13
Centerline to top (in)	S	5.56	6.06	6.56
Operating clearance from center (in)	T	6.25	6.88	8.00

(1) Other bores available on special request.

FLANGNEK RING-JOINT**CLASS 600 - FLANGNEK WITH RING-JOINT FACE FLANGE**

SIZE (IN)		2	3	4	6
Weight (lb)		46	70	100	155
API Ring number		R-23	R-31	R-37	R-45
Diameter internal line bore (in) ⁽¹⁾	A	2.067	3.068	4.026	5.76
Upstream face of orifice plate to face of end (in)	B	4.00	4.50	5.00	5.72
Downstream face of orifice plate to face of flange (in)	C	4.00	4.50	5.00	5.72
Overall face to face (in)	D	8.13	9.13	10.13	11.56
Centerline to bottom (in)	K1	4.00	4.25	4.69	5.75
Number, diameter (in) of studs per flange		8, 0.63	8, 0.75	8, 0.88	12, 1
Length of studs with 2 hex nuts (in)		4.50	5.25	6.00	7.00
Center to face of meter tap hole (in)	O	3.06	3.62	4.13	5.56
Orifice plate thickness (in)	R	0.13	0.13	0.13	0.13
Centerline to top (in)	S	4.75	5.25	5.75	6.88
Operating clearance from center (in)	T	5.44	6	6.44	7.11

(1) Other bores available on special request.

CLASS 900 - FLANGNEK WITH RING-JOINT FACE FLANGE

SIZE (IN)		2	3	4	6
Weight (lb)		70	95	135	275
API Ring number		R-24	R-31	R-37	R-45
Diameter internal line bore (in) ⁽¹⁾	A	1.939	2.900	3.826	5.761
Upstream face of orifice plate to face of end (in)	B	5.38	5.50	5.88	6.31
Downstream face of orifice plate to face of flange (in)	C	5.38	5.50	5.88	6.44

CLASS 900 - FLANGNEK WITH RING-JOINT FACE FLANGE (CONTINUED)

SIZE (IN)		2	3	4	6
Overall face to face (in)	D	10.88	11.13	11.88	12.88
Centerline to bottom (in)	K1	3.81	4.38	4.88	6.13
Number, diameter (in) of studs per flange		8, 0.88	8, 0.88	8, 1.13	12, 1.13
Length of studs with 2 hex nuts (in)		6.00	6.00	7.00	8.00
Center to face of meter tap hole (in)	O	3.31	3.75	4.38	6.00
Orifice plate thickness (in)	R	0.13	0.13	0.13	0.13
Centerline to top (in)	S	4.75	5.25	5.75	6.88
Operating clearance from center (in)	T	5.75	6.25	7.25	8.38

(1) Other bores available on special request.

CLASS 1500 - FLANGNEK WITH RING-JOINT FACE FLANGE

SIZE (IN)		2	3	4	6
Weight (lb)		85	135	190	440
API Ring number		R-24	R-35	R-39	R-46
Diameter internal line bore (in) ⁽¹⁾	A	1.939	2.900	3.826	5.761
Upstream face of orifice plate to face of end (in)	B	5.88	6.50	7.06	8.94
Downstream face of orifice plate to face of flange (in)	C	5.88	6.50	7.06	8.94
Overall face to face (in)	D	11.88	13.13	14.25	18.00
Centerline to bottom (in)	K1	3.81	4.44	5.00	6.50
Number, diameter (in) of studs per flange		8, 0.88	8, 1.13	8, 1.25	12, 1.38
Length of studs with 2 hex nuts (in)		6	7.25	8	10.5
Center to face of meter tap hole (in)	O	3.50	4.00	4.75	6.25
Orifice plate thickness (in)	R	0.13	0.13	0.13	0.13
Centerline to top (in)	S	5.56	6.06	6.56	7.69
Operating clearance from center (in)	T	6.25	6.88	8	9.11

(1) Other bores available on special request.

CLASS 2500 - FLANGNEK WITH RING-JOINT FACE FLANGE

SIZE (IN)		2	3	4	6
Weight (lb)		85	135	190	440
API Ring number		R-26	R-32	R-38	R-47
Diameter internal line bore (in) ⁽¹⁾	A	1.687	2.900	3.826	5.187
Upstream face of orifice plate to face of end (in)	B	6.50	7.44	7.06	11.00
Downstream face of orifice plate to face of flange (in)	C	6.50	7.44	7.06	11.00
Overall face to face (in)	D	13.13	15.00	14.25	22.13
Centerline to bottom (in)	K1	4.25	4.75	5.00	6.50
Number, diameter (in) of studs per flange		8, 1.00	8, 1.25	8, 1.5	8, 2.00
Length of studs with 2 hex nuts (in)		7.00	9.25	10.50	14.25
Center to face of meter tap hole (in)	O	3.75	4.44	4.63	6.44

CLASS 2500 - FLANGNEK WITH RING-JOINT FACE FLANGE (CONTINUED)

SIZE (IN)		2	3	4	6
Orifice plate thickness (in)	R	0.13	0.13	0.13	0.13
Centerline to top (in)	S	5.56	6.06	6.56	7.69
Operating clearance from center (in)	T	6.25	6.88	8	9.11

(1) Other bores available on special request.

With over 90 years of experience, Daniel is the only manufacturer that has the knowledge and experience to engineer and offer superior products that are trusted to provide the most reliable and accurate measurements in the global oil and gas industry.

Contact Us

Email: sales@Daniel.com

Phone: +1 (346) 509-3700

www.Daniel.com

