

Orifice Flange Union

Product Overview

The **Orifice Flange Union (ARO-OPAFU)** by Arrotop integrates different types of orifice plates with flange unions, creating a differential pressure system for precise flow measurement. These assemblies comply with international standards such as ISO 5167-2 and ASME MFC-3M, ensuring high-quality orifice tapplings, minimizing errors, and facilitating accurate flow measurement. Suitable for various industrial applications, including oil, gas, chemical processing, and water treatment, the ARO-OPAFU series provides reliability, efficiency, and versatility.

Advantages

- High Accuracy
- Versatile Applications
- Low Maintenance
- Economical
- Enhanced Reliability

Applications

- Chemical Processing
- Oil and Gas
- Industrial Piping
- Water Treatment

Weld Neck Orifice Flange Union (ARO-OPAFU-WN1)

The **Weld Neck Orifice Flange Union** is tailored for high-pressure applications, featuring a long, tapered hub for a robust welded connection, ensuring precise bore alignment and reducing stress concentrations.



Key Features

High-Pressure Capability : Ideal for high-pressure and high-temperature environments.

Secure Welded Seal : Provides a strong, leak-proof connection.

Accurate Measurement : Ensures minimal flow disturbance due to precise alignment.

Slip-On Orifice Flange Union (ARO-OPAFU-SO2)

The **Slip-On Orifice Flange Union** allows for easy installation by sliding over the pipe and being welded. It is cost-effective and suitable for systems requiring moderate accuracy.



Key Features

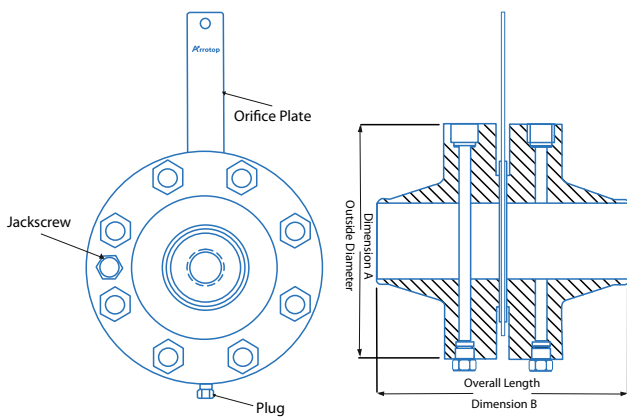
Simplified Installation : Facilitates less precise cutting and alignment.

Cost-Effective : Lower installation costs compared to weld neck flanges.

Versatile Use : Suitable for various pipe diameters and moderate pressure systems.

Technical Details

Model Number	ARO-OPAFU-WN1
Material	SS 304/L, 316/L, Duplex, Super Duplex, Hastelloy, Carbon Steel, Monel, Inconel, Titanium
Orifice Plate Types	Square Edge, Eccentric, Conical Entrance, Quarter Circle
Pressure Classes	150, 300, 600, 900, 1500, 2500
Standards	ISO 5167-2, ASME MFC-3M, ISO TR 15377, AGA 3 ANSI B16.36, B31.3



Conclusion

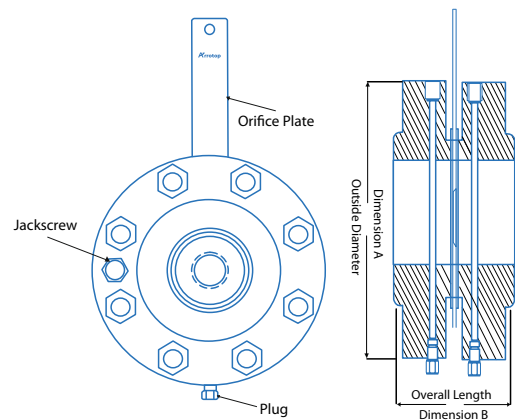
The **Weld Neck Orifice Flange Union (ARO-OPAFU-WN1)** offers reliable performance in high-pressure and high-temperature environments. Its secure and precise design ensures accurate flow measurements and robust sealing. With a range of materials and standards compliance, it meets diverse industrial requirements, providing comprehensive documentation for quality assurance.

General Notes for All Orifice Flange Unions

- ▶ **Pressure Classes** : The pressure class selected should match the operational pressure requirements of the system and is critical for ensuring safe and efficient performance.
- ▶ **Orifice Plate Selection** : The type of orifice plate (Square Edge, Conical Entrance, Quarter Circle, Eccentric, Segmental, Quadrant) should be chosen based on the fluid type, flow conditions, and measurement accuracy required.
- ▶ **Material Compatibility** : Ensure that the material of construction is compatible with the fluid being measured to prevent corrosion and ensure longevity.
- ▶ **Installation** : Proper installation is essential for accurate measurement. Ensure that the orifice plate is centered and the flange union is aligned with the pipe axis to minimize flow disturbances and measurement errors.
- ▶ **Calibration and Maintenance** : Regular calibration and maintenance are recommended to maintain measurement accuracy and system integrity. Ensure that all seals and connections are inspected periodically for wear or damage.

Technical Details

Model Number	ARO-OPAFU-SO2
Material	SS 304/L, 316/L, Duplex, Super Duplex, Hastelloy, Carbon Steel, Monel, Inconel, Titanium
Orifice Plate Types	Square Edge, Eccentric, Conical Entrance, Quarter Circle
Pressure Classes	150, 300, 600, 900, 1500
Standards	ISO 5167-2, ASME MFC-3M, ANSI B16.36, B31.3



Conclusion

The **Slip-On Orifice Flange Union (ARO-OPAFU-SO2)** is a cost-effective solution for moderate pressure systems. Its simplified installation process, versatility, and compliance with industry standards make it a practical choice for various applications, providing reliable performance and detailed documentation for ease of use.

Dimension Table

Class 150 Weld Neck Flange Dimension

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD	Weld Neck OD	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
1/2	90	9.6	30	21.3	34.9	2	60.3	4	1/2
3/4	100	11.2	38	26.7	42.9	2	69.9	4	1/2
1	110	12.7	49	33.4	50.8	2	79.4	4	1/2
1 1/4	115	14.3	59	42.2	63.5	2	88.9	4	1/2
1 1/2	125	15.9	65	48.2	73	2	98.4	4	1/2
2	150	17.5	78	60.3	92.1	2	120.7	4	5/8
2 1/2	180	20.7	90	73	104.8	2	139.7	4	5/8
3	190	22.3	108	88.9	127	2	152.4	4	5/8
3 1/2	215	22.3	122	101.6	139.7	2	177.8	8	5/8
4	230	22.3	135	114.3	157.2	2	190.5	8	5/8
5	255	22.3	164	141.3	185.7	2	215.9	8	3/4
6	280	23.9	192	168.3	215.9	2	241.3	8	3/4
8	345	27	246	219.1	269.9	2	298.5	8	3/4
10	405	28.6	305	273	323.8	2	362	12	7/8
12	485	30.2	365	323.8	381	2	431.8	12	7/8
14	535	33.4	400	355.6	412.8	2	476.3	12	1
16	595	35	457	406.4	469.9	2	539.8	16	1
18	635	38.1	505	457.2	533.4	2	577.9	16	1 1/8
20	700	41.3	559	508	584.2	2	635	20	1 1/8
24	815	46.1	663	610	692.2	2	749.3	20	1 1/4

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Class 300 Weld Neck Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD	Weld Neck OD	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
1/2	95	12.7	38	21.3	34.9	2	66.7	4	1/2
3/4	115	14.3	48	26.7	42.9	2	82.6	4	5/8
1	125	15.9	54	33.4	50.8	2	88.9	4	5/8
1 1/4	135	17.5	64	42.2	63.5	2	98.4	4	5/8
1 1/2	155	19.1	70	48.2	73	2	114.3	4	3/4
2	165	20.7	84	60.3	92.1	2	127	8	5/8
2 1/2	190	23.9	100	73	104.8	2	149.2	8	3/4
3	210	27	117	88.9	127	2	168.3	8	3/4
3 1/2	230	28.6	133	101.6	139.7	2	184.2	8	3/4
4	255	30.2	146	114.3	157.2	2	200	8	3/4
5	280	33.4	178	141.3	185.7	2	235	8	3/8
6	320	35	206	168.3	215.9	2	269.9	12	3/8
8	380	39.7	260	219.1	269.9	2	330.2	12	7/8
10	445	46.1	321	273	323.8	2	387.4	16	1
12	520	49.3	375	323.8	381	2	450.8	16	1 1/8
14	585	52.4	425	355.6	412.8	2	514.4	20	1 1/8
16	650	55.6	483	406.4	469.9	2	571.5	20	1 1/4
18	710	58.8	533	457.2	533.4	2	628.6	24	1 1/4
20	775	62	587	508	584.2	2	685.8	24	1 1/4
24	915	68.3	702	610	692.2	2	812.8	24	1 1/2

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Class 600 Weld Neck Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD	Weld Neck OD	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
1/2	95	14.3	38	21.3	34.9	7	66.7	4	1/2
3/4	115	15.9	48	26.7	42.9	7	82.6	4	5/8
1	125	17.5	54	33.4	50.8	7	88.9	4	5/8
1 1/4	135	20.7	64	42.2	63.5	7	98.4	4	5/8
1 1/2	155	22.3	70	48.2	73	7	114.3	4	3/4
2	165	25.4	84	60.3	92.1	7	127	8	5/8
2 1/2	190	28.6	100	73	104.8	7	149.2	8	3/4
3	210	31.8	117	88.9	127	7	168.3	8	3/4
3 1/2	230	35	133	101.6	139.7	7	184.2	8	7/8
4	275	38.1	152	114.3	157.2	7	215.9	8	7/8
5	330	44.5	189	141.3	185.7	7	266.7	8	1
6	355	47.7	222	168.3	215.9	7	292.1	12	1
8	420	55.6	273	219.1	269.9	7	349.2	12	1 1/8
10	510	63.5	343	273	323.8	7	431.8	16	1 1/4
12	560	66.7	400	323.8	381	7	489	20	1 1/4
14	605	69.9	432	355.6	412.8	7	527	20	1 3/8
16	685	76.2	495	406.4	469.9	7	603.2	20	1 1/2
18	745	82.6	546	457.2	533.4	7	654	20	1 5/8
20	815	88.9	610	508	584.2	7	723.9	24	1 5/8
24	940	101.6	718	610	692.2	7	838.2	24	1 7/8

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Class 900 Weld Neck Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD	Weld Neck OD	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
1/2	120	22.3	38	21.3	34.9	7	82.6	4	3/4
3/4	130	25.4	44	26.7	42.9	7	88.9	4	3/4
1	150	28.6	52	33.4	50.8	7	101.6	4	7/8
1 1/4	160	28.6	64	42.2	63.5	7	111.1	4	7/8
1 1/2	180	31.8	70	48.2	73	7	123.8	4	1
2	215	38.1	105	60.3	92.1	7	165.1	8	7/8
2 1/2	245	41.3	124	73	104.8	7	190.5	8	1
3	240	38.1	127	88.9	127	7	190.5	8	7/8
4	290	44.5	159	114.3	157.2	7	235	8	1 1/8
5	350	50.8	190	141.3	185.7	7	279.4	8	1 1/4
6	380	55.6	235	168.3	215.9	7	317.5	12	1 1/8
8	470	63.5	298	219.1	269.9	7	393.7	12	1 3/8
10	545	69.9	368	273	323.8	7	469.9	16	1 3/8
12	610	79.4	419	323.8	381	7	533.4	20	1 3/8
14	640	85.8	451	355.6	412.8	7	558.8	20	1 1/2
16	705	88.9	508	406.4	469.9	7	616	20	1 5/8
18	785	101.6	565	457	533.4	7	685.8	20	1 7/8
20	855	108	622	508	584.2	7	749.3	20	2
24	1040	139.7	749	610	692.2	7	901.7	20	2 1/2

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Class 1500 Weld Neck Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD	Weld Neck OD	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
1/2	120	22.3	38	21.3	34.9	7	82.6	4	3/4
3/4	130	25.4	44	26.7	42.9	7	88.9	4	3/4
1	150	28.6	52	33.4	50.8	7	101.6	4	7/8
1 1/4	160	28.6	64	42.2	63.5	7	111.1	4	7/8
1 1/2	180	31.8	70	48.3	73	7	123.8	4	1
2	215	38.1	105	60.3	92.1	7	165.1	8	7/8
2 1/2	245	41.3	124	73	104.8	7	190.5	8	1
3	265	47.7	133	88.9	127	7	203.2	8	1 1/8
4	310	54	162	114.3	157.2	7	241.3	8	1 1/4
5	375	73.1	197	141.3	185.7	7	292.1	8	1 1/2
6	395	82.6	229	168.3	215.9	7	317.5	12	1 3/8
8	485	92.1	292	219.1	269.9	7	393.7	12	1 5/8
10	585	108	368	273	323.8	7	482.6	12	1 7/8
12	675	123.9	451	323.8	381	7	571.5	16	2
14	750	133.4	495	355.6	412.8	7	635	16	2 1/4
16	825	146.1	552	406.4	469.9	7	704.8	16	2 1/2
18	915	162	597	457	533.4	7	774.7	16	2 3/4
20	985	177.8	641	508	584.2	7	831.8	16	3
24	1170	203.2	762	610	692.2	7	990.6	16	3 1/2

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Class 2500 Weld Neck Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD	Weld Neck OD	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
1/2	135	30.2	43	21.3	34.9	7	88.9	4	3/4
3/4	140	31.8	51	26.7	42.9	7	95.2	4	3/4
1	160	35	57	33.4	50.8	7	108	4	7/8
1 1/4	185	38.1	73	42.2	63.5	7	130.2	4	1
1 1/2	205	44.5	79	48.3	73	7	146	4	1 1/8
2	235	50.9	95	60.3	92.1	7	171.4	8	1
2 1/2	265	57.2	114	73	104.8	7	196.8	8	1 1/8
3	305	66.7	133	88.9	127	7	228.6	8	1 1/4
4	355	76.2	165	114.3	157.2	7	273	8	1 1/2
5	420	92.1	203	141.3	185.7	7	323.8	8	1 3/4
6	485	108	235	168.3	215.9	7	368.3	8	2
8	550	127	305	219.1	269.9	7	438.2	12	2
10	675	165.1	375	273	323.8	7	539.8	12	2 1/2
12	760	184.2	441	323.8	381	7	619.1	12	2 3/4

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Dimension Table

Class 150 Slip -on Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD (mm)	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
1/2	90	9.6	30	34.9	2	60.3	4	1/2
3/4	100	1.12	38	42.	2	69.9	4	1/2
1	110	1.27	49	50.8	2	79.4	4	1/2
1 1/4	115	14.3	59	63.5	2	88.9	4	1/2
1 1/2	125	15.3	65	73	2	98.4	4	1/2
2	150	17.5	78	92.1	2	120.7	4	5/8
2 1/2	180	20.7	90	104.8	2	139.7	4	5/8
3	190	22.3	108	127	2	152.4	4	5/8
3 1/3	215	22.3	122	139.7	2	177.8	8	5/8
4	230	22.3	135	157.2	2	190.5	8	5/8
5	255	22.3	164	185.7	2	215.9	8	3/4
6	280	23.9	192	215.9	2	241.3	8	3/4
8	345	27	246	269.9	2	298.5	8	3/4
10	405	28.6	305	323.8	2	362	12	7/8
12	485	30.2	365	381	2	431.8	12	7/8
14	535	33.4	400	412.8	2	476.3	12	1
16	595	35	457	469.9	2	539.8	16	1
18	635	38.1	505	533.4	2	577.9	16	1 1/8
20	700	41.3	559	584.2	2	635	20	1 1/8
24	815	46.1	663	692.2	2	749.3	20	1 1/4

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Class 300 Slip -on Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD (mm)	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
1/2	95	12.7	38	34.9	2	60.7	4	1/2
3/4	115	14.3	48	42.9	2	82.6	4	5/8
1	125	15.9	54	50.8	2	88.9	4	5/8
1 1/4	135	17.5	64	63.5	2	98.4	4	5/8
1 1/2	155	19.1	70	73	2	114.3	4	3/4
2	165	20.7	84	92.1	2	127	8	5/8
2 1/2	190	23.9	100	104.8	2	149.2	8	3/4
3	210	27	117	127	2	168.3	8	3/4
3 1/3	230	28.6	133	139.7	2	184.2	8	3/4
4	255	30.2	146	157.2	2	200	8	3/4
5	280	33.4	178	185.7	2	235	8	3/4
6	320	35	206	215.9	2	269.9	12	3/4
8	380	39.7	260	269.9	2	330.2	12	7/8
10	445	46.1	321	323.8	2	387.4	16	1
12	520	49.3	375	381	2	450.8	16	1 1/8
14	585	52.4	425	412.8	2	514.4	20	1 1/8
16	650	55.6	483	469.9	2	571.5	20	1 1/4
18	710	58.8	533	533.4	2	628.6	24	1 1/4
20	775	62.	587	584.2	2	685.8	24	1 1/4
24	915	68.3	702	692.2	2	812.8	24	1 1/2

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Class 600 Slip -on Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD (mm)	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
½	95	14.3	38	34.9	7	66.7	4	½
¾	115	15.9	48	42.9	7	82.6	4	5/8
1	125	17.5	54	50.8	7	88.9	4	5/8
1 ¼	135	20.7	64	63.5	7	98.4	4	5/8
1 ½	155	22.3	70	73	7	114.3	4	¾
2	165	25.4	84	92.1	7	127	8	5/8
2 ½	190	28.6	100	104.8	7	149.2	8	¾
3	210	31.8	117	127	7	168.3	8	¾
4	275	38.1	152	157.2	7	215.9	8	7/8
5	330	44.5	189	185.7	7	266.7	8	1
6	355	47.7	222	215.9	7	292.1	12	1
8	420	55.6	273	269.9	7	349.2	12	1 1/8
10	510	63.5	343	323.8	7	431.8	16	1 ¼
12	560	66.7	400	381	7	489	20	1 ¼
14	605	69.9	432	412.8	7	527	20	1 ¾
16	685	76.2	495	469.9	7	603.2	20	1 ½
18	745	82.6	546	533.4	7	654	20	1 5/8
20	815	88.9	610	584.2	7	723.9	24	1 5/8
24	940	101.6	718	692.2	7	838.2	24	1 5/8

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Class 900 Slip -on Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD (mm)	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
½	120	22.3	38	34.9	7	82.6	4	¾
¾	130	25.4	44	42.9	7	88.9	4	¾
1	150	28.6	52	50.8	7	101.6	4	7/8
1 ¼	160	28.6	64	63.5	7	111.1	4	7/8
1 ½	180	31.8	70	73	7	123.8	8	1
2	215	38.1	105	92.1	7	165.1	8	7/8
2 ½	245	41.3	124	104.8	7	190.5	8	1
3	240	38.1	127	127	7	190.5	8	7/8
4	290	44.5	159	157.2	7	235	8	1 1/8
5	350	50.8	190	185.7	7	279.4	12	1 ¼
6	380	55.6	235	215.9	7	317.5	12	1 1/8
8	470	63.5	298	269.9	7	393.7	16	1 3/8
10	545	69.9	368	323.8	7	469.9	20	1 3/8
12	610	79.4	419	381	7	533.4	20	1 3/8
14	640	85.8	451	412.8	7	558.8	20	1 ½
16	705	88.9	508	469.9	7	616	20	1 5/8
18	785	101.6	565	533.4	7	685.8	20	1 7/8
20	855	108	622	584.2	7	749.3	20	2
24	1040	139.7	749	692.2	7	901.7	20	2 ½

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Class 2500 Weld Neck Flange Dimensions

Size (Inch)	OD (mm)	Flange Thickness (mm)	Hub OD	Weld Neck OD	RF Diameter (mm)	RF Height (mm)	PCD (mm)	No of Bolts	Bolt Size (UNC)
1/2	135	30.2	43	21.3	34.9	7	88.9	4	3/4
3/4	140	31.8	51	26.7	42.9	7	95.2	4	3/4
1	160	35	57	33.4	50.8	7	108	4	7/8
1 1/4	185	38.1	73	42.2	63.5	7	130.2	4	1
1 1/2	205	44.5	79	48.3	73	7	146	4	1 1/8
2	235	50.9	95	60.3	92.1	7	171.4	8	1
2 1/2	265	57.2	114	73	104.8	7	196.8	8	1 1/8
3	305	66.7	133	88.9	127	7	228.6	8	1 1/4
4	355	76.2	165	114.3	157.2	7	273	8	1 1/2
5	420	92.1	203	141.3	185.7	7	323.8	8	1 3/4
6	485	108	235	168.3	215.9	7	368.3	8	2
8	550	127	305	219.1	269.9	7	438.2	12	2
10	675	165.1	375	273	323.8	7	539.8	12	2 1/2
12	760	184.2	441	323.8	381	7	619.1	12	2 3/4

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