ANAB ACCREDITED

QMS REGISTERED
ISO 9001:2000
Certificate No. 0428

License No: 6A-0675

API Spec Q1 Registered
Reg. No. Q1-0144

GASKET FACTORY
Branch of
AL-IMAN FACTORIES

2nd INDUSTRIAL CITY • DAMMAM • P.O. BOX 805 DAMMAM 31421 • K.S.A.
TEL: 00966-3-8122135/8122142 • FAX: 00966-3-8122165
E-mail: imangasket@nesma.net.sa • Website: www.imangaskets.com

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AL-IMAN FACTORIES

ISO 9001:2000
Certificate No. 0428

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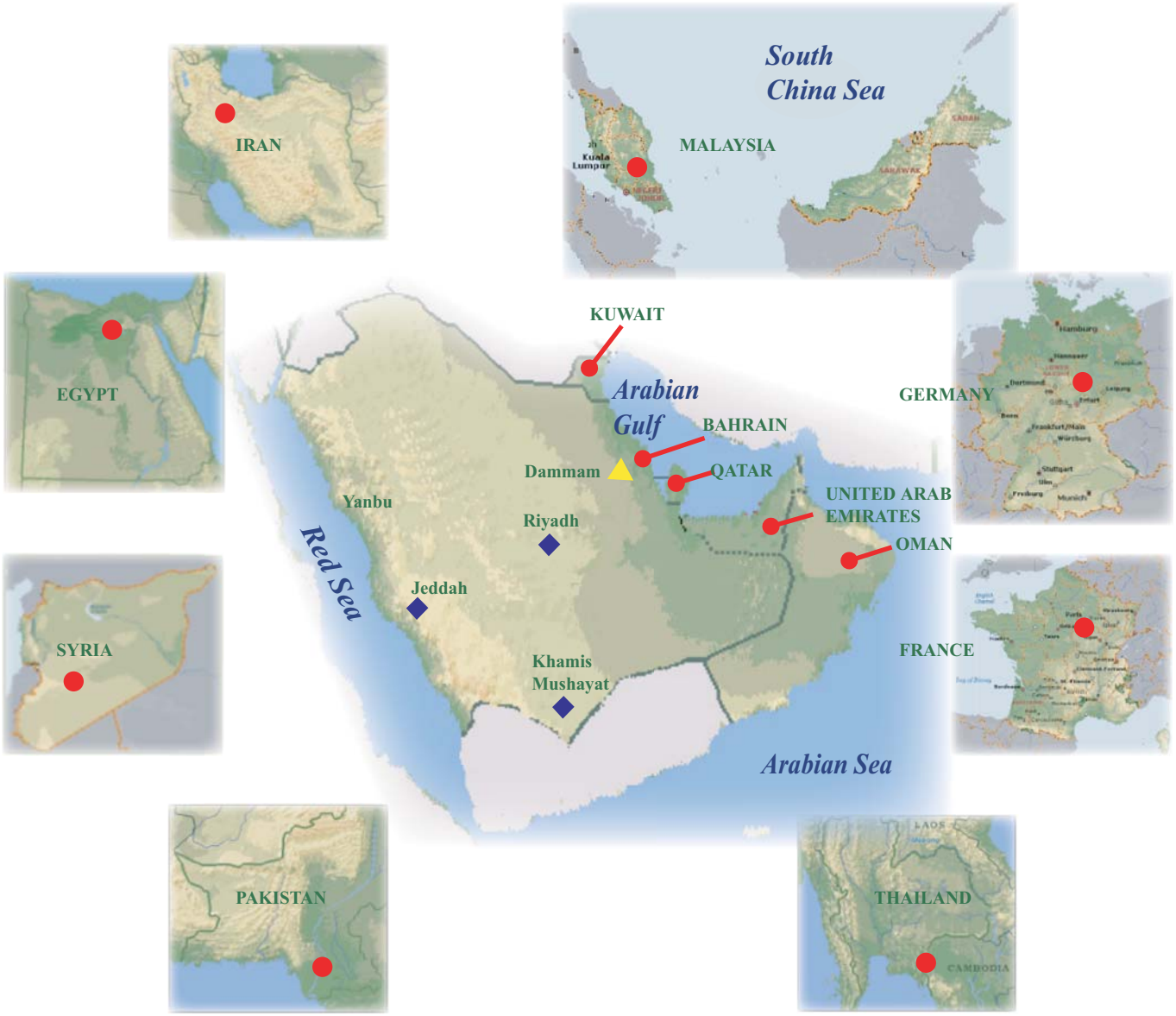
License No: 6A-0675

Locations:

Manufacturing Unit ▲

Branch Offices ◆

Agency Offices ●



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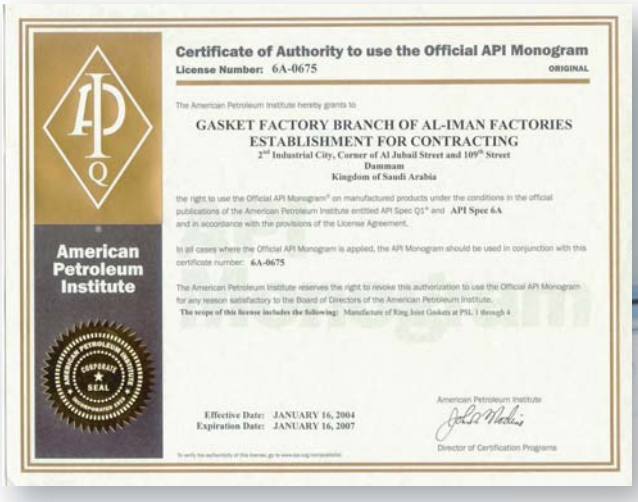
Quality Control

Hardness Inspection

Incoming materials are verified as to Al-Iman's special requirements stated in the PURCHASE ORDER SPECIFICATION.



Certificate of Authority to use the Official API Monogram

License Number: 6A-0675 ORIGINAL

The American Petroleum Institute hereby grants to

GASKET FACTORY BRANCH OF AL-IMAN FACTORIES
ESTABLISHMENT FOR CONTRACTING
2nd Industrial City, Corner of Al Jubail Street and 109th Street
Dammam
Kingdom of Saudi Arabia

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and API Spec 6A and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram should be used in conjunction with this certificate number: 6A-0675

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Manufacture of Ring Joint Gaskets at PSL 1 through 4

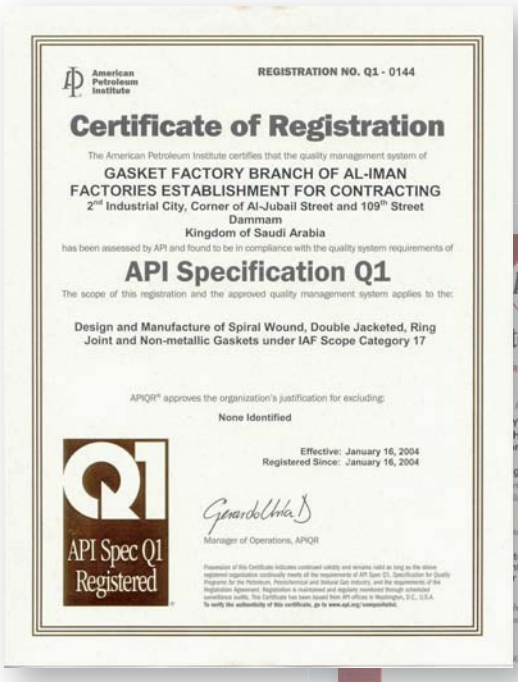
American Petroleum Institute

Effective Date: JANUARY 16, 2004
Expiration Date: JANUARY 16, 2007

Director of Certification Programs

Positive Material Identification

Incoming materials are positively identified to verify conformance to Al-Iman's PURCHASE ORDER SPECIFICATION.



American Petroleum Institute

REGISTRATION NO. Q1 - 0144

Certificate of Registration

The American Petroleum Institute certifies that the quality management system of

GASKET FACTORY BRANCH OF AL-IMAN
FACTORIES ESTABLISHMENT FOR CONTRACTING
2nd Industrial City, Corner of Al-Jubail Street and 109th Street
Dammam
Kingdom of Saudi Arabia

has been assessed by API and found to be in compliance with the quality system requirements of

API Specification Q1

The scope of this registration and the approved quality management system applies to the:

Design and Manufacture of Spiral Wound, Double Jacketed, Ring Joint and Non-metallic Gaskets under IAF Scope Category 17

APIQR® approves the organization's justification for excluding:

None Identified

Effective: January 16, 2004
Registered Since: January 16, 2004

Manager of Operations, APIQR

API Spec Q1 Registered

In-process Inspection:

In-process inspections are conducted to ensure that product conforms to specified requirements at all stages of manufacture and to provide documented records of in-process inspection and test.

QMS REGISTERED

te of Registration

REGISTRATION NUMBER

0428

Y BRANCH OF AL-IMAN FACTORIES
HMENT FOR CONTRACTING
rner of Al Jubail Street and 109th Street
Dammam
gdom of Saudi Arabia

ISO 9001:2000

ture of Spiral Wound, Double Jacketed,
t and Non-metallic Gaskets
IAF Scope Category 17

None Identified

N/A

EFFECTIVE DATE: January 16, 2004

Manager of Operations, APIQR

QUALITY REGISTRAR

BVQI

ficate of Approval

Awarded to

ORY BRANCH OF AL-IMAN FACTORIES
LISHMENT FOR CONTRACTING
KINGDOM OF SAUDI ARABIA

Quality International certify that the
agement System of the above supplier
ward and found to be in accordance
the requirements of the quality
standards detailed below

Final Inspection:

Final inspection is conducted on all products despatched to the customer.

TUV CERT

CERTIFICATE

DAR

The TÜV-Zertifizierungsgemeinschaft e.V.
hereby certifies that

AL-IMAN FACTORIES ESTABLISHMENT
FOR CONTRACTING

has established and applies
a quality system for

RWTÜV

2nd INDUSTRIAL CITY • DAMMAM • P.O. BOX 805 DAMMAM 31421 • K.S.A.
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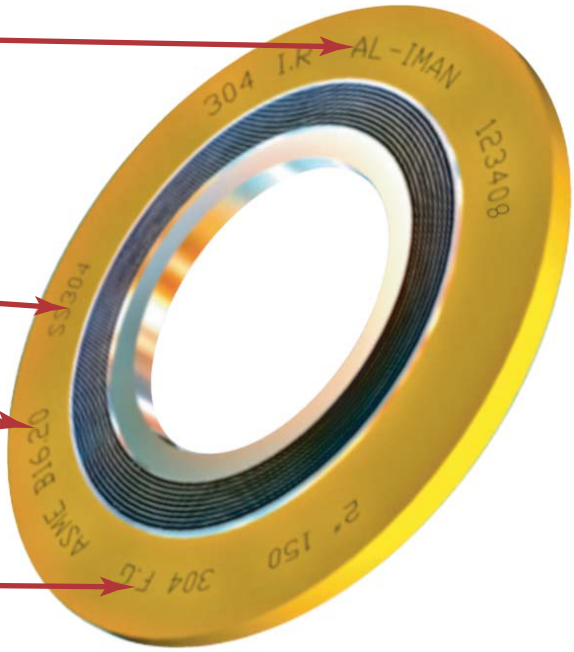
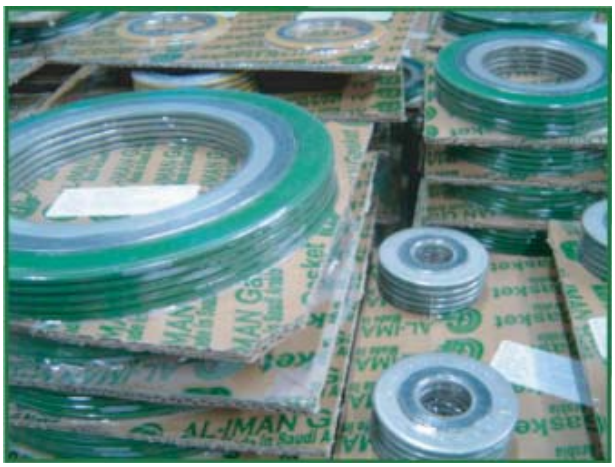
Spiral Wound Gaskets

MARKING TO ASME B16.20:1998

- Manufacturer Name
- Inner Ring Material other than SS304
- Outer Ring Material other than Carbon Steel
- Manufacturing Standard
- Nominal Pipe Size / Pressure Class/Winding Material/Filler Material





.....Spiral wound gaskets packed and vacuum sealed to a square sheet of heavy laminated triwall corrugated fiberboard

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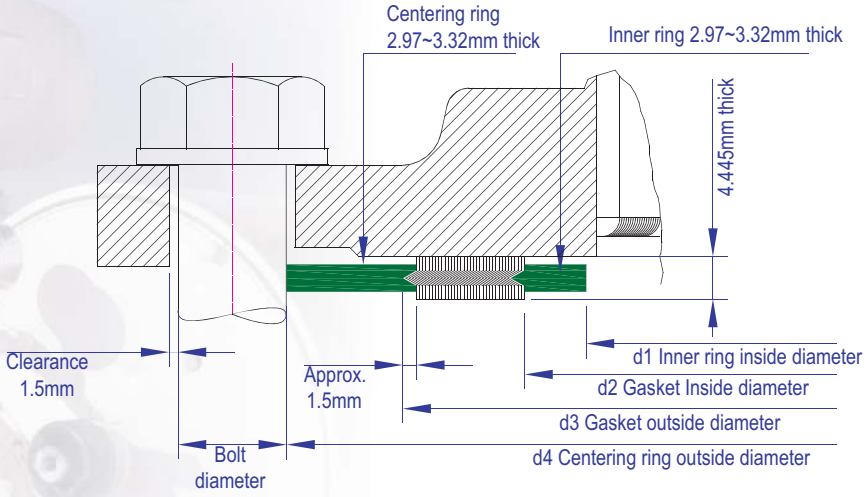
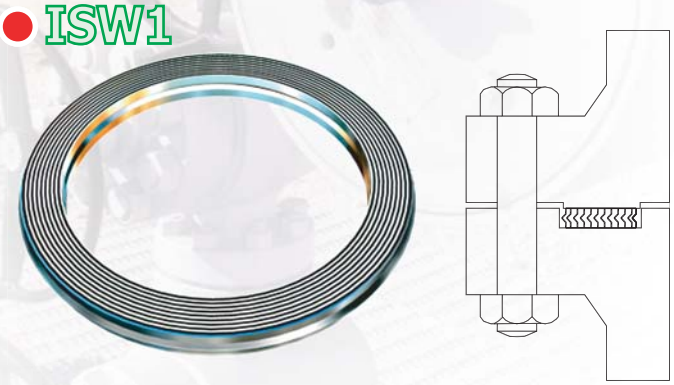
Spiral Wound Gaskets

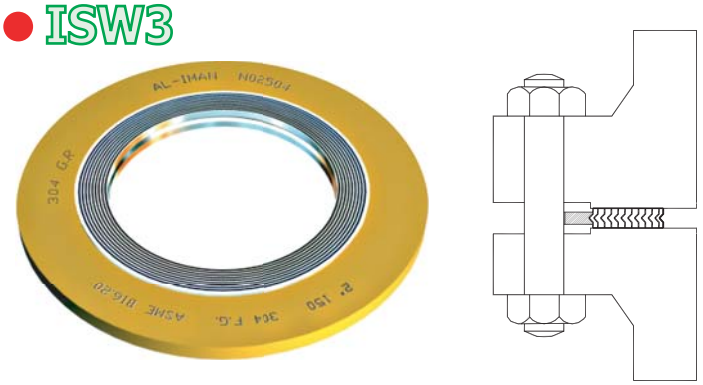


ISW1



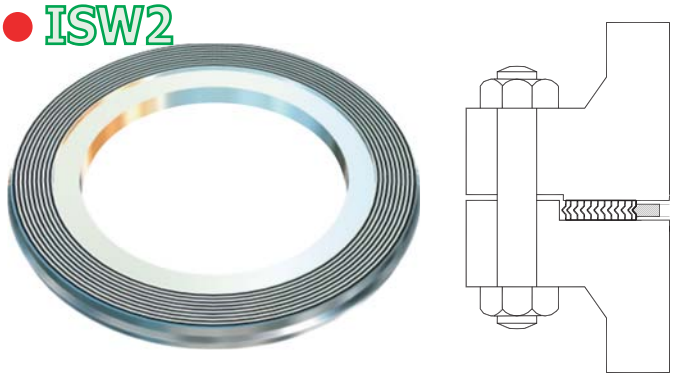
The ISW1 Al-Iman Spiral Wound gasket has no metal ring. This style is suitable for tongue and groove face connection and sometimes for male and female face connection but not suitable for ordinary pipe flange of raised face. This style is commonly used for valve bonnet, pressure vessels, etc.

ISW3



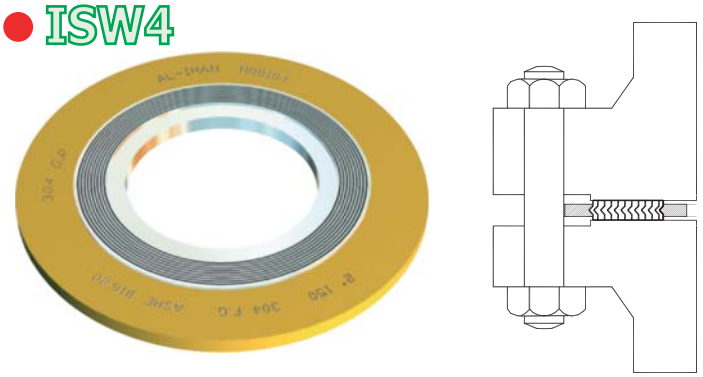
The ISW3 Al-Iman Spiral Wound gasket is with outer metal ring. Outer ring works as 1) centering a gasket properly between the flanges, 2) limiting bolt load at proper compression, 3) preventing external expansion by compression.
For PTFE filler gasket, this style is basically not recommended due to possibility of inward buckling during compression. This style is most common for ordinary pipe flange of raised face.

ISW2



The ISW2 Al-Iman Spiral Wound gasket has metal inner ring. As inner ring works as reinforcement to prevent internal extrusion or inward buckling of gasket windings caused by compression, this style is suitable for male and female face connection but not suitable for ordinary pipe flange of raised face.

ISW4



The ISW4 Al-Iman Spiral Wound gasket has both metal outer and inner ring. As inner ring works to prevent internal extrusion or inward buckling, this style is especially recommended for the following cases.
- For flanges NPS 24 and larger in class 900, NPS 12 and larger in class 1500 and NPS 4 and larger in class 2500#.
- PTFE filler material.
- For socket welding, lapped, welding neck and integral flanges.

This style is suitable for pipe or pressure vessels using raised face flange connection.

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Spiral Wound Gaskets

DIMENSIONS FOR SPIRAL-WOUND GASKETS TO ASME B16.20 (API 601) USED WITH ASME/ANSI B16.5 FLANGES

DN		d1					d2					d3		d4						
		PN 20-PN 50	PN 68-PN 100	PN 150	PN 250	PN 420	PN 20-PN 50	PN 68-PN 100	PN 150	PN 250	PN 420	PN 20-PN 100	PN150-PN 420	PN 20	PN 50	PN 68	PN 100	PN 150	PN 250	PN 420
(mm)	(inch)	150 300 lbs	400 600 lbs	900 lbs	1500 lbs	2500 lbs	150 300 lbs	400 600 lbs	900 lbs	1500 lbs	2500 lbs	150 - 600 lbs	900 - 2500 lbs	150 lbs	300 lbs	400 lbs	600 lbs	900 lbs	1500 lbs	2500 lbs
15	½	14.2	14.2	14.2	14.2	14.2	19.1	19.1	19.1	19.1	19.1	31.8	31.8	47.8	54.1	54.1	54.1	63.5	63.5	69.9
20	¾	20.6	20.6	20.6	20.6	20.6	25.4	25.4	25.4	25.4	25.4	39.6	39.6	57.2	66.8	66.8	66.8	69.9	69.9	76.2
25	1	26.9	26.9	26.9	26.9	26.9	31.8	31.8	31.8	31.8	31.8	47.8	47.8	66.8	73.2	73.2	73.2	79.5	79.5	85.9
32	1¼	38.1	38.1	33.3	33.3	33.3	47.8	47.8	39.6	39.6	39.6	60.5	60.5	76.2	82.6	82.6	82.6	88.9	88.9	104.9
40	1½	44.5	44.5	41.4	41.4	41.4	54.1	54.1	47.8	47.8	47.8	69.9	69.9	85.9	95.3	95.3	95.3	98.6	98.6	117.6
50	2	55.6	55.6	52.3	52.3	52.3	69.9	69.9	58.7	58.7	58.7	85.9	85.9	104.9	111.3	111.3	111.3	143	143	146
65	2½	66.5	66.5	63.5	63.5	63.5	82.6	82.6	69.9	69.9	69.9	98.6	98.6	124	130.3	130.3	130.3	165.1	165.1	168.4
80	3	81.0	78.7	78.7	78.7	78.7	101.6	101.6	95.3	92.2	92.2	120.7	120.7	136.7	149.4	149.4	149.4	168.4	174.8	196.9
90	*3½	93.7	93.7	-	-	-	114.3	104.8	104.8	104.8	-	133.4	133.4	161.9	165.1	161.9	161.9	190.5	187.3	-
100	4	106.4	102.6	102.6	97.8	97.8	127	120.7	120.7	117.6	117.6	149.4	149.4	174.8	181.1	177.8	193.8	206.5	209.6	235
125	5	131.8	128.3	128.3	124.5	124.5	155.7	147.6	147.6	143.0	143.0	177.8	177.8	196.9	215.9	212.9	241.3	247.7	254	279.4
150	6	157.2	154.9	154.9	147.3	147.3	182.6	174.8	174.8	171.5	171.5	209.6	209.6	222.3	251	247.7	266.7	289.1	282.7	317.5
200	8	215.9	205.7	196.9	196.9	196.9	233.4	225.6	222.3	215.9	215.9	263.7	257.3	279.4	308.1	304.8	320.8	358.9	352.6	387.4
250	10	268.3	255.3	246.1	246.1	246.1	287.3	274.6	276.4	266.7	270	317.5	311.2	339.9	362	358.9	400.1	435.1	435.1	476.3
300	12	317.5	307.3	292.1	292.1	292.1	339.9	327.2	323.9	323.9	317.5	374.7	368.3	409.7	422.4	419.1	457.2	498.6	520.7	549.4
350	14	349.3	342.9	320.8	320.8	-	371.6	362	355.6	362	-	406.4	400.1	450.9	485.9	482.6	492.3	520.7	577.9	-
400	16	400.1	389.9	374.7	368.3	-	422.4	412.8	412.8	406.4	-	463.6	457.2	514.4	539.8	536.7	565.2	574.8	641.4	-
450	18	449.3	438.2	425.5	425.5	-	474.7	469.9	463.6	463.6	-	527.1	520.7	549.4	596.9	593.9	612.9	638.3	704.9	-
500	20	500.1	489.0	482.6	476.3	-	525.5	520.7	520.7	514.4	-	577.9	571.5	606.5	654.1	647.7	682.8	698.5	755.7	-
600	24	603.3	590.6	590.6	577.9	-	628.7	628.7	628.7	616.0	-	685.8	679.5	717.6	774.7	768.4	790.7	838.2	901.7	-

* DN 3½ in. (90 mm) AL-IMAN INTERNAL MANUFACTURING SPECIFICATION

DIMENSIONS FOR SPIRAL-WOUND GASKETS TO ASME B16.20 USED WITH ASME B16.47 SERIES A (MSS-SP44) FLANGES

DN		d1					d2					d3					d4				
		PN 20	PN 50	PN 68	PN 100	PN 150	PN 20	PN 50	PN 68	PN 100	PN 150	PN 20	PN 50	PN 68	PN 100	PN 150	PN 20	PN 50	PN 68	PN 100	PN 150
(mm)	(inch)	150 lbs	300 lbs	400 lbs	600 lbs	900 lbs	150 lbs	300 lbs	400 lbs	600 lbs	900 lbs	150 lbs	300 lbs	400 lbs	600 lbs	900 lbs	150 lbs	300 lbs	400 lbs	600 lbs	900 lbs
550	*22	552.5	552.5	552.5	552.5	-	577.9	577.9	577.9	577.9	616.0	609.6	628.7	628.7	628.7	685.8	660.4	704.8	701.7	733.4	838.2
650	26	654.1	654.1	660.4	647.7	666.8	673.1	685.8	685.8	685.8	685.8	704.9	736.6	736.6	736.6	736.6	774.7	835.2	831.9	866.9	882.7
700	28	704.9	704.9	711.2	698.5	711.2	723.9	736.6	736.6	736.6	736.6	755.7	787.4	787.4	787.4	787.4	831.9	898.7	892.3	914.4	946.2
750	30	755.7	755.7	755.7	755.7	774.7	774.7	793.8	793.8	793.8	793.8	806.5	844.6	844.6	844.6	844.6	882.7	952.5	946.2	971.6	1009.7
800	32	806.5	806.5	812.8	812.8	812.8	825.5	850.9	850.9	850.9	850.9	860.6	901.7	901.7	901.7	901.7	939.8	1006.6	1003.3	1022.4	1073.2
850	34	857.3	857.3	863.6	863.6	863.6	876.3	901.7	901.7	901.7	901.7	911.4	952.5	952.5	952.5	952.5	990.6	1057.4	1054.1	1073.2	1136.7
900	36	908.1	908.1	917.7	917.7	920.8	927.1	955.8	955.8	955.8	958.9	968.5	1006.6	1006.6	1006.6	1009.7	1047.8	1117.6	1117.6	1130.3	1200.2
950	38	958.9	952.5	952.5	952.5	1009.7	977.9	977.9	971.6	990.6	1035.1	1019.3	1016.0	1022.4	1041.4	1085.8	1111.3	1054.1	1073.2	1104.9	1200.2
1000	40	1009.7	1003.3	1000.3	1009.7	1060.5	1028.7	1022.4	1025.7	1047.8	1098.6	1070.1	1070.1	1076.5	1098.6	1149.4	1162.1	1114.6	1127.3	1155.7	1251.0
1050	42	1060.5	1054.1	1051.1	1066.8	1111.3	1079.5	1073.2	1076.5	1104.9	1149.4	1124.0	1120.9	1127.3	1155.7	1200.2	1219.2	1165.4	1178.1	1219.2	1301.8
1100	44	1111.3	1104.9	1104.9	1111.3	1155.7	1130.3	1130.3	1130.3	1162.1	1206.5	1178.1	1181.1	1181.1	1212.9	1257.3	1276.4	1219.2	1231.9	1270.0	1368.6
1150	46	1162.1	1152.7	1168.4	1162.1	1219.2	1181.1	1178.1	1193.8	1212.9	1270.0	1228.9	1228.9	1244.6	1263.7	1320.8	1327.2	1273.3	1289.1	1327.2	1435.1
1200	48	1212.9	1209.8	1206.5	1219.2	1270.0	1231.9	1235.2	1244.6	1270.0	1320.8	1279.7	1286.0	1295.4	1320.8	1371.6	1384.3	1324.1	1346.2	1390.7	1485.9
1250	50	1263.7	1244.6	1257.3	1270.0	-	1282.7	1295.4	1295.4	1320.8	-	1333.5	1346.2	1346.2	1371.6	-	1435.1	1378.0	1403.4	1447.8	-
1300	52	1314.5	1320.8	1308.1	1320.8	-	1333.5	1346.2	1346.2	1371.6	-	1384.3	1397.0	1397.0	1422.4	-	1492.3	1428.8	1454.2	1498.6	-
1350	54	1358.9	1352.6	1352.6	1378.0	-	1384.3	1403.4	1403.4	1428.8	-	1435.1	1454.2	1454.2	1479.6	-	1549.4	1492.3	1517.7	1555.8	-
1400	56	1409.7	1403.4	1403.4	1428.8	-	1435.1	1454.2	1454.2	1479.6	-	1485.9	1505.0	1505.0	1530.4	-	1606.6	1543.1	1568.5	1612.9	-
1450	58	1460.5	1447.8	1454.1	1473.2	-	1485.9	1511.3	1505.0	1536.7	-	1536.7	1562.1	1555.8	1587.5	-	1663.7	1593.8	1619.3	1663.7	-
1500	60	1511.3	1524.0	1517.7	1530.4	-	1536.7	1562.1	1568.5	1593.9	-	1587.5	1612.9	1619.3	1644.7	-	1714.5	1644.7	1682.8	1733.6	-

* DN 22 in. (550 mm) AL-IMAN INTERNAL MANUFACTURING SPECIFICATION

DIMENSIONS FOR SPIRAL-WOUND GASKETS TO ASME B16.20 USED WITH ASME B16.47 SERIES B (API 605) FLANGES

DN		d1					d2					d3					d4				
		PN 20	PN 50	PN 68	PN 100	PN 150	PN 20	PN 50	PN 68	PN 100	PN 150	PN 20	PN 50	PN 68	PN 100	PN 150	PN 20	PN 50	PN 68	PN 100	PN150
(mm)	(inch)	150 lbs	300 lbs	400 lbs	600 lbs	900 lbs	150 lbs	300 lbs	400 lbs	600 lbs	900 lbs	150 lbs	300 lbs	400 lbs	600 lbs	900 lbs	150 lbs	300 lbs	400 lbs	600 lbs	900 lbs
650	26	654.1	654.1	654.1	644.7	673.1	673.1	673.1	666.8	663.7	692.2	698.5	711.2	698.5	714.5	749.3	725.4	771.7	746.3	765.3	838.2
700	28	704.9	704.9	701.8	692.2	723.9	723.9	723.9	714.5	704.9	743.0	749.3	762.0	749.3	755.7	800.1	776.2	825.5	800.1	819.2	901.7
750	30	755.7	755.7	752.6	752.6	787.4	774.7	774.7	765.3	778.0	806.5	800.1	812.8	806.5	828.8	857.3	827.0	886.0	857.3	879.6	958.9
800	32	806.5	806.5	800.1	793.8	838.2	825.5	825.5	812.8	831.9	863.6	850.9	863.8	860.6	882.7	914.4	881.1	939.8	911.4	933.5	1016.0
850	34	857.3	857.3	850.9	850.9	895.4	876.3	876.3	866.9	889.0	920.8	908.1	914.4	911.4	939.8	971.6	935.0	993.9	962.2	997.0	1073.2
900	36	908.1	908.1	898.7	901.7	927.1	927.1	927.1	917.7	939.8	946.2	958.9	965.2	965.2	990.6	997.0	987.5	1047.8	1022.4	1047.8	1124.0
950	38	958.9	971.6	952.5	952.5	1009.7	974.6	1009.7	971.6	990.6	1035.1	1009.7	1047.8	1022.4	1041.4	1085.9	1044.7	1098.6	1073.2	1104.9	1200.2
1000	40	1009.7	1022.3	1000.3	1009.7	1060.5	1022.4	1060.5	1025.7	1047.8	1098.6	1063.8	1098.6	1076.5	1098.6	1149.5	1095.5	1149.4	1127.3	1155.7	1251.0
1050	42	1060.5	1085.8	1051.1	1066.8	1111.3	1079.5	1111.3	1076.5	1104.9	1149.4	1114.6	1149.4	1127.3	1155.7	1200.2	1146.3	1200.2	1178.1	1219.2	1301.8
1100	44	1111.3	1124.0	1104.9	1111.3	1155.7	1124.0	1162.1	1130.3	1162.0	1206.5	1165.4	1200.2	1181.1	1212.9	1257.3	1197.1	1251.0	1231.9	1270.0	1368.6
1150	46	1162.1	1178.1	1168.4	1162.1	1219.2	1181.1	1216.2	1193.8	1212.9	1270.0	1224.0	1254.3	1244.6	1263.7	1320.8	1255.8	1317.8	1289.1	1327.2	1435.1
1200	48	1212.9	1231.9	1206.5	1219.2	1270.0	1231.9	1263.7	1244.6	1270.0	1320.8	1270.0	1311.4	1295.4	1320.8	1371.6	1306.6	1368.6	1346.2	1390.7	1485.9
1250	50	1263.7	1267.0	1257.3	1270.0	-	1282.7	1317.8	1295.4	1320.8	-	1325.6	1355.9	1346.2	1371.6	-	1357.4	1419.4	1403.4	1447.8	-
1300	52	1314.5	1317.8	1308.1	1320.8	-	1333.5	1368.6	1346.2	1371.6	-	1376.4	1406.7	1397.0	1422.4	-	1408.2	1470.2	1454.2	1498.6	-
1350	54	1365.3	1365.3	1352.6	1378.0	-	1384.3	1403.4	1403.4	1428.8	-	1422.4	1454.2	1454.2	1479.6	-	1463.8	1530.4	1517.7	1555.8	-
1400	56	1422.4	1428.8	1403.4	1428.8	-	1444.8	1479.6	1454.2	1479.6	-	1477.8	1524.0	1505.0	1530.4	-	1514.6	1593.9	1568.5	1612.9	-
1450	58	1478.0	1484.4	1454.2	1473.2	-	1500.4	1535.2	1505.0	1536.7	-	1528.8	1573.3	1555.8	1587.5	-	1579.6	1655.8	1619.3	1663.7	-
1500	60	1535.2	1557.3	1517.7	1530.4	-	1557.3	1589.0	1568.5	1593.9	-	1586.0	1630.4	1619.3	1644.7	-	1630.4	1706.6	1682.8	1733.6	-

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Non-metallic Gaskets

HIGH PERFORMANCE GRAPHITE MATERIALS

ASBESTOS FREE MATERIALS

PTFE

RUBBER MATERIALS

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Non-metallic Gaskets

HIGH PERFORMANCE GRAPHITE MATERIALS

CHARACTERISTIC PRODUCT		RECOMMENDED APPLICATIONS
STANDARD L CI	Unreinforced impregnated	Raised face diameters up to 350 mm; large segmented gaskets, enamel; glass; highly corrosive media
SIGRASEAL V M2	with tanged 316 stainless steel sheet reinforcement	For gaskets meeting DIN /ANSI flanges and up to service pressures of 100 bar For piping with corrosive media and high temperatures, for heat transfer oil and heating facilities, for existing plants, vessels and steam lines, for exhaust manifolds For corrosive media thanks to its excellent resistance to chemicals, limits imposed by stainless steel sheet reinforcement For thermally stressed piping and vessels in the paper industry.
UNIVERSAL V C2I	Reinforced with perforated sheet steel; impregnated	Pipework and vessels in the chemical and petrochemical industries and power stations; raised face diameters of maximum 1000 mm; tongue-and-groove upto 40 bar
HOCHDRUCK V Z3I	Unbonded stainless steel foil	Very high operating pressures and gasket stresses to meet exacting safety requirements; sealed joints in the chemical and petrochemical industries and power stations

ASBESTOS FREE MATERIALS

AFM 30	AFM30 is an oil and solvent resistant standard material	In compressors, pipelines, apparatus, internal combustion engines; as seal against most transmission, hydraulic, refrigeration and motor oils as well as fuels, against mixtures of water with antifreeze and corrosion inhibitors, against solvents and diluted alkalies. 100 bar, operation temp. 400 deg.c. (depending on operating conditions and media)
AFM 34	A special characteristic of this high-grade gasket material is that it is physiologically neutral and free from any color pigments	AFM 34 especially for use in contact with drinking water and foodstuffs as well as for sealing of high purity products which are sensitive to contamination, for instance, paint bases and vitamins. For DIN and ANSI flange assemblies, apparatus, pumps, fittings and pipelines of industrial plants
AFM 37	AFM 37 is comparable to the material AFM 30. The only difference is a lower tensile strength.	In compressors, pipe lines, apparatus, internal combustion engines under normal stress; to seal off most transmission, hydraulic, refrigeration and motor oils as well as fuels, against mixtures of water with antifreeze and corrosion inhibitors, against alkalies and solvents. 100 bar
REINZOLOID FS 53	The base of this gasket material are impregnated cellulose fibres which are bonded with glue	To seal off water (also with added anti-freeze and corrosion inhibitors), oils and fuels, for instance in carburetors, fuel pumps, oil pans, transmissions and side covers. Operating temp. 120 deg.
RUBBERIZED CORK RGC 210	The material is composed of cork bonded with nitrile rubber. RGC 210 is resistant to oil and fuelds.	For gaskets and pads under low flange loads, for instance to seal switch gear and air conditioners. 5 bar

PTFE

VIRGIN PTFE	PTFE is one of the best plastic for withstanding high temperatures.	PTFE is used by the chemical and pharmaceutical industries, in pump and valve manufacture, in compressors, for vehicles and aircraft, in hydraulic and pneumatic systems, by the electrical industry, in pipework, in medicine and by the foodstuffs industry.

RUBBER MATERIALS

NEOPRENE	A good general purpose poly-chloroprene sheet.	For sealing oils, gasoline and petroleum solvents.
EPDM	Ethylene propylene polymer displaying excellent resistance to ozone,oxygen, and water.	For Hot and cold water, steam.
VITON	This fluoro-elastomer sheet displays unusual resistance to oils and chemicals .	For oils, aliphatic hydrocarbons, air, chlorine to 107 deg.c.,hot gases, dry steam to 149 deg.c,most acids, ammonia and gasoline.

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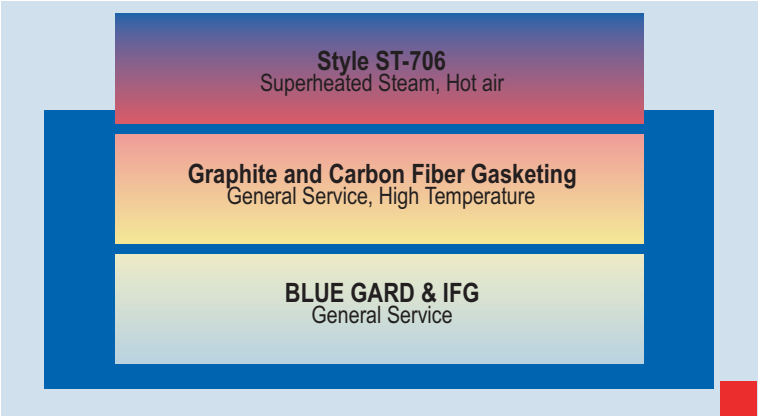
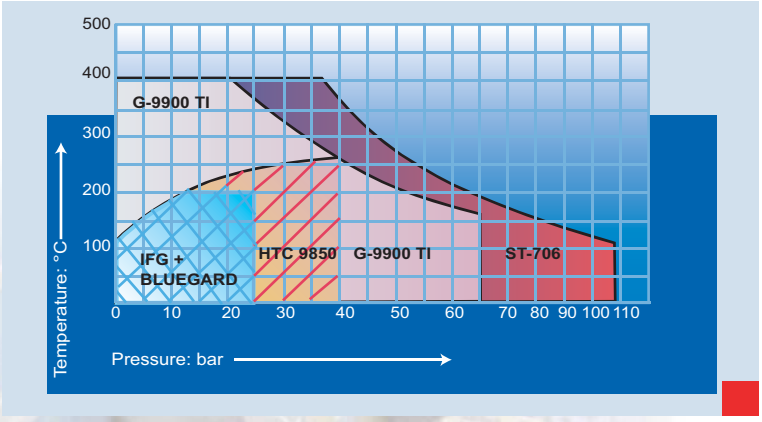
Non-metallic Gaskets

GARLOCK GASKETING PRODUCTS

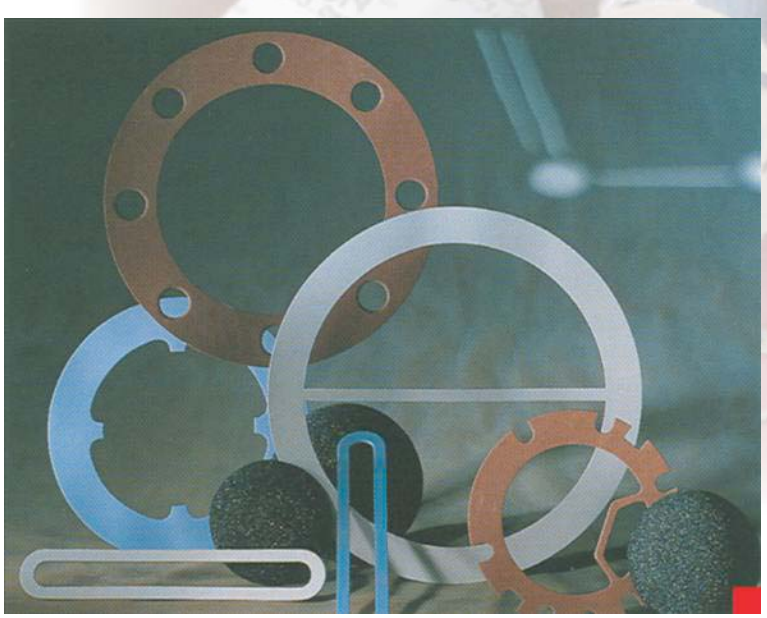


Garlock offers a full range of non-asbestos fiber gasketing materials developed to meet the most stringent environmental standards.

To meet the demand for a fiber gasket material, primarily for steam service, Garlock developed Style ST-706. The inorganic fibers used in the gasket offer reduced oxidation, thus providing greater thermal stability and a longer gasket service life.



MODIFIED PTFE



GYLON
Re-structured PTFE gasketing for chemical applications.

Greatly reduced creep relaxation and cold flow, resulting in higher retention of bolt torque loads is one of the main benefits of GYLON over both conventional virgin and filled PTFE products.

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Non-metallic Gaskets

GARLOCK GASKETING PRODUCTS

Compressed Inorganic Fiber Gasketing

The New Standard in Gasketing
A specially formulated, all purpose family of Garlock inorganic asbestos-free fiber gasketing which exceeds the parameters of aramid fiber reinforced gasketing in thermal stability, torque retention, sealability and weight loss.

As inorganic fibers do not oxidize IFG and ST-706 provides greater thermal and dimensional stability during process cycling.

IFG is produced to meet most service requirements. The IFG material also offers flexibility when writing corporate piping specifications - giving you the right gasket for the right application - the first time.

ST-706 is the result of extensive research and development primarily aimed at the requirement for a high temperature gasket, particularly for steam service.

Services:	ST-706
IFG 5500	Hot water, saturated steam, superheated steam
Water, saturated steam, aliphatic hydrocarbons, oils, gasoline, mild acids and alkalies	

BLUE GARD Gasketing

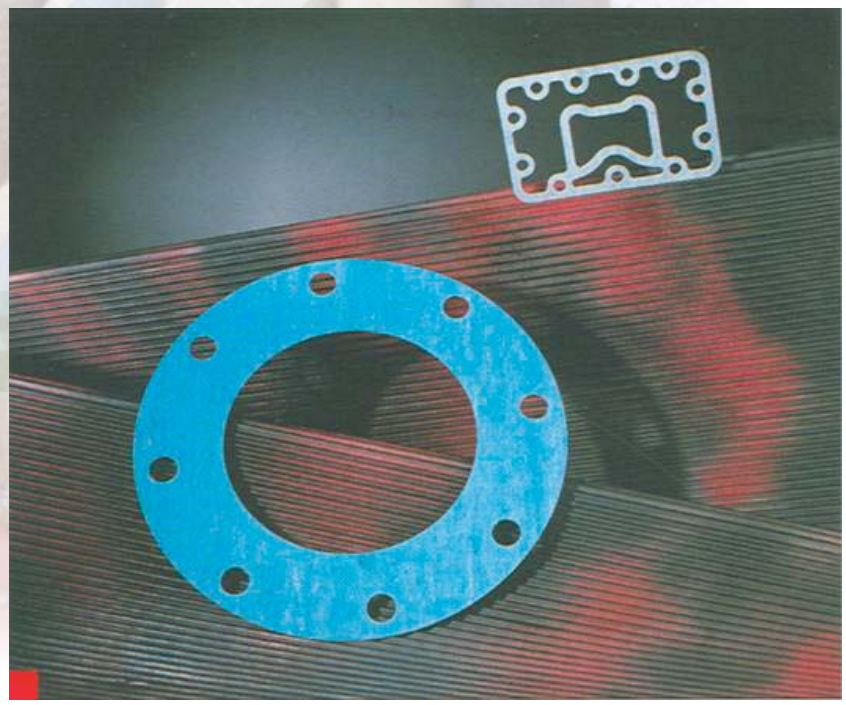
Compressed non-asbestos gasketing
BLUE GARD gasketing provides superior sealability and excellent creep relaxation. BLUE GARD gasketing is produced from special blends of synthetic fibers, fillers and elastomeric binders. BLUE GARD gasketing serves as a general purpose gasket material across a wide range of industrial applications.

Services:

Style 3000
Water, aromatic hydrocarbons, oils, gasoline, mild acids and alkalies

Style 3400, Style 3200
Water, saturated steam, inert gas, mild acids and alkalies

Style 3700
Water, saturated steam, mild acids, strong caustics of moderate concentrations



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Non-metallic Gaskets

FLAT RING GASKET DIMENSIONS TO ASME B16.21:2005 USED WITH ASME/ANSI B16.5 RAISED FACE FLANGES

(Dimensions in mm)

NOMINAL SIZE DN mm	NPS in.	ID	OD 150 lbs	OD 300 lbs	OD 400 lbs	OD 600 lbs	OD 900 lbs
15	½	21.3	47.8	53.8	53.8	53.8	63.5
20	¾	26.9	57.2	66.5	66.5	66.5	69.9
25	1	33.3	66.5	73.2	73.2	73.2	79.2
32	1¼	42.2	76.2	82.6	82.6	82.6	88.9
40	1½	48.5	85.9	95.3	95.3	95.3	98.6
50	2	60.5	104.6	111.3	111.3	111.3	142.7
65	2½	73.2	124.0	130.0	130.0	130.0	165.1
80	3	88.9	136.7	149.4	149.4	149.4	168.1
90	3½	101.6	162.1	165.1	162.1	162.1	-
100	4	114.3	174.8	180.8	177.8	193.5	206.2
125	5	141.2	196.9	215.9	212.9	241.3	247.7
150	6	168.1	222.2	251.0	247.7	266.7	289.1
200	8	218.9	279.4	307.8	304.8	320.5	358.6
250	10	273.1	339.9	362.0	358.6	400.1	434.8
300	12	323.9	409.7	422.1	419.1	457.2	498.3
350	14	355.6	450.9	485.6	482.6	492.3	520.7
400	16	406.4	514.4	539.8	536.4	565.2	574.5
450	18	457.2	549.1	596.9	593.9	612.6	638.0
500	20	508.0	606.6	654.1	647.7	682.8	698.5
600	24	609.6	717.6	774.7	768.4	790.4	838.2

FULL FACE GASKET DIMENSIONS TO ASME B16.21:2005 USED WITH ASME/ANSI B16.5 FLAT FACE FLANGES

(Dimensions in mm)

NOMINAL SIZE DN mm	NPS in.	ID	150 lbs OD	150 lbs BCD	150 lbs HOLE DIA.	150 lbs No. of bolt holes	* 300 lbs OD	* 300 lbs BCD	* 300 lbs HOLE DIA.	* 300 lbs No. of bolt holes
15	½	21.3	88.9	60.5	15.9	4	95	67	16	4
20	¾	26.9	98.6	69.9	15.9	4	117	83	19	4
25	1	33.3	108.0	79.2	15.9	4	123	89	19	4
32	1¼	42.2	117.6	88.9	15.9	4	133	98	19	4
40	1½	48.5	127.0	98.6	15.9	4	155	114	22	4
50	2	60.5	152.4	120.7	19.1	4	165	127	19	8
65	2½	73.2	177.8	139.7	19.1	4	190	149	22	8
80	3	88.9	190.5	152.4	19.1	4	209	168	22	8
90	3½	101.6	215.9	177.8	19.1	8	228	184	22	8
100	4	114.3	228.6	190.5	19.1	8	254	200	22	8
125	5	141.2	254.0	215.9	22.4	8	279	235	22	8
150	6	168.1	279.4	241.3	22.4	8	317	270	22	12
200	8	218.9	342.9	298.5	22.4	8	381	330	25	12
250	10	273.1	406.4	362.0	25.4	12	444	387	29	16
300	12	323.9	482.6	431.8	25.4	12	520	451	32	16
350	14	355.6	533.4	476.3	28.6	12	584	514	32	20
400	16	406.4	596.9	539.8	28.6	16	647	572	35	20
450	18	457.2	635.0	577.9	31.8	16	711	629	35	24
500	20	508.0	698.5	635.0	31.8	20	774	686	35	24
600	24	609.6	812.8	749.3	35.1	20	914	813	41	24

* AL-IMAN INTERNAL MANUFACTURING SPECIFICATIONS

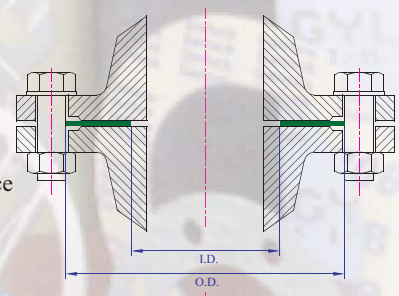
FLAT RING GASKET DIMENSIONS TO ASME B16.21:2005 USED WITH ASME B16.47 SERIES-A RAISED FACE FLANGES

(Dimensions in mm)

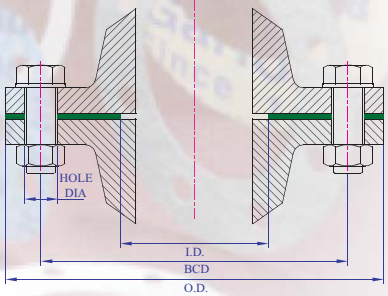
NOMINAL SIZE DN mm	NPS in.	ID	OD 150 lbs	OD 300 lbs	OD 400 lbs	OD 600 lbs
550 1)	22 1)	558.8	660.4	704.9	701.8	733.6
650	26	660.4	774.7	835.2	831.9	866.6
700	28	711.2	831.9	898.7	892.0	914.4
750	30	762.0	882.7	952.5	946.2	971.6
800	32	812.8	939.8	1006.3	1003.3	1022.4
850	34	863.6	990.6	1057.1	1054.1	1073.2
900	36	914.4	1047.8	1117.6	1117.6	1130.3
950	38	965.2	1111.3	1054.1	1073.4	1104.9
1000	40	1016.0	1162.1	1114.6	1127.3	1155.7
1050	42	1066.8	1219.2	1165.4	1178.1	1219.2
1100	44	1117.6	1276.4	1219.2	1231.9	1270.0
1150	46	1168.4	1327.2	1273.0	1289.1	1327.4
1200	48	1219.2	1384.3	1323.8	1346.2	1390.7
1250	50	1270.0	1435.1	1378.0	1403.4	1447.8
1300	52	1320.8	1492.3	1428.8	1454.4	1498.6
1350	54	1371.6	1549.4	1492.3	1517.7	1555.8
1400	56	1422.4	1606.6	1543.1	1568.5	1612.9
1450	58	1473.2	1663.7	1593.9	1619.3	1663.7
1500	60	1524.0	1714.5	1644.7	1682.8	1733.6

NOTE: 1) NPS 22 for reference only. Size not listed in ASME B16.47

Flat Ring Gasket Used With Raised Face Flanges



Full Face Gasket Used With Flat Face Flanges



FLAT RING GASKET DIMENSIONS TO ASME B16.21:2005 USED WITH ASME B16.47 SERIES-B RAISED FACE FLANGES

(Dimensions in mm)

NOMINAL SIZE DN mm	NPS in.	ID	OD 75 lbs	OD 150 lbs	OD 300 lbs	OD 400 lbs	OD 600 lbs
650	26	660.4	708.2	725.4	771.7	746.3	765.0
700	28	711.2	759.0	776.2	825.5	800.1	819.2
750	30	762.0	809.8	827.0	886.0	857.3	879.3
800	32	812.8	860.6	881.1	939.8	911.4	933.5
850	34	863.6	911.4	935.0	993.6	962.2	997.0
900	36	914.4	973.1	987.6	1047.8	1022.4	1047.8
950	38	965.2	1023.9	1044.4	1098.6	-	-
1000	40	1016.0	1074.7	1095.2	1149.4	-	-
1050	42	1066.8	1125.5	1146.0	1200.2	-	-
1100	44	1117.6	1181.1	1196.8	1251.0	-	-
1150	46	1168.4	1231.9	1255.8	1317.8	-	-
1200	48	1219.2	1282.7	1306.6	1368.6	-	-
1250	50	1270.0	1333.5	1357.4	1419.4	-	-
1300	52	1320.8	1387.3	1408.2	1470.2	-	-
1350	54	1371.6	1438.1	1463.5	1555.8	-	-
1400	56	1422.4	1495.6	1514.3	1593.9	-	-
1450	58	1473.2	1546.4	1579.6	1655.8	-	-
1500	60	1524.0	1597.2	1630.4	1704.8	-	-

FULL FACE GASKET DIMENSIONS FOR ASME B16.47 SERIES-A FLAT FACE FLANGES

(Dimensions in mm)

NOMINAL SIZE DN mm	NPS in.	* 150 lbs ID	* 150 lbs OD	* 150 lbs BCD	* 150 lbs HOLE DIA.	* 150 lbs No. of bolt holes	* 300 lbs ID	* 300 lbs OD	* 300 lbs BCD	* 300 lbs HOLE DIA.	* 300 lbs No. of bolt holes
550	22	558.8	749	692	35	20	558.8	838	743	41	24
650	26	660.4	870	806	35	24	700	971	876	45	28
700	28	711.2	927	864	35	28	750	1035	940	45	28
750	30	762.0	984	914	35	28	805	1092	997	48	28
800	32	812.8	1060	978	42	28	860	1149	1054	51	28
850	34	863.6	1111	1029	42	32	905	1206	1105	51	28
900	36	914.4	1168	1086	42	32	955	1270	1168	54	32
950	38	965.2	1238	1149	42	32	965	1168	1092	41	32
1000	40	1016.0	1289	1200	42	36	1015	1238	1156	45	32
1050	42	1066.8	1346	1257	42	36	1065	1289	1207	45	32
1100	44	1117.6	1403	1315	42	40	1120	1352	1264	48	32
1150	46	1168.4	1454	1365	42	40	1170	1416	1321	51	28
1200	48	1219.2	1511	1422	42	44	1220	1466	1372	51	32
1250	50	1270.0	1568	1480	48	44	1270	1530	1429	54	32
1300	52	1320.8	1625	1537	48	44	1320	1581	1480	54	32
1350	54	1371.6	1682	1594	48	44	1370	1657	1549	60	28
1400	56	1422.4	1746	1651	48	48	1420	1708	1600	60	28
1450	58	1473.2	1803	1708	48	48	1475	1758	1651	60	32
1500	60	1524.0	1854	1759	48	52	1525	1809	1702	60	32

* AL-IMAN MANUFACTURING SPECIFICATIONS

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Heat Exchanger Gaskets

Metal Jacketed Gaskets

PRODUCT		CHARACTERISTICS
IDJ1		The most popular style for heat exchangers, the double-jacketed gasket offers complete protection of the filler material. There is practically no diameter limitation, with greater compressability and resilience than a similar solid metal gasket. This gasket provides even support by the use of the overlapped jacket on the inside and outside diameters. Also, the outside lap helps to prevent excessive distortion of light weight flanges. The most common filler used is graphite. A wide range of metal and filler material is available if dictated by temperature, pressure, or corrosive conditions.
IDJ2		The corrugated style has increased resilience with the benefit of a number of seal "points". If a small leakage occurs across the inside edge, the corrugations act as separate seals under moderate and even bolt loads.
IDJ3		This gasket employs a metal filler rather than graphite or other soft material. The result is greater resistance to problems resulting from temperature changes. The range of temperature is limited only by the metal selected.
IDJ4		This gasket is generally used for applications where narrow width is required. The single jacket gasket with a soft filler protects both edges of the filler material. It is an economical answer to many gasket needs. Single jacketed gaskets are available with corrugated metal fillers.
IDJ5		Affording the advantages of the standard double jacketed gasket, the double shell style allows greater strength and rigidity by the addition of a completely overlapping inner shell. This gasket has a minimum flange width of 1/4", and can be produced in almost any diameter. As with other heat exchanger gaskets, there is a greater variety of available metals and filler materials.
IDJ6		A gasket with completely enclosed filler offering more filler protection than the standard single gasket. Especially useful for applications requiring small flange widths (to 1/8"). Certain sizes may require tooling to produce.
IDJ7		The two piece French Style gasket is more readily available and easier to produce than the one-piece French Style which requires expensive tooling. The soft filler is exposed on the outside diameter and the minimum flange width is 1/4". Size of diameter is practically unlimited.
IDJ8		This gasket combines advantages of metal shielding on the I.D. with a thick, compressable layer of soft gasket material on either side of the metal. Metal thickness is 26 gauge, tack welded together and then rolled over on the ID, acting as a shield. The layers of soft gasket materials are available in various densities and thicknesses.

Solid Metal Gaskets

PRODUCT		CHARACTERISTICS
ISM1		While requiring a smooth flange face and high bolt load, the solid metal ISM1 gasket has numerous "plus" points. It has great strength, good heat conductivity, and resistance to temperature, corrosion and pressure. There is practically no size or shape limitation.
ISM2		This type of gasket is economical for a low-pressure seal on smooth flanges with low bolt pressure. Advantages are low cost, lightweight and greater resilience than a comparable flat solid gasket. Temperature applications are based upon the metal selected.
ISM3		In cross section, the ISM3 gasket incorporates a solid metal core with graphite foil bonded to each face. The graphite facing layers are manufactured from high purity material to exact thickness and density, thus ensuring that correct material compression can be controlled, vital in enclosed applications. This high quality graphite material provides excellent sealing characteristics, readily flowing into flange imperfections under relatively low applied loads, whilst the metallic core provides a rigid gasket construction, vital for operating and handling conditions.

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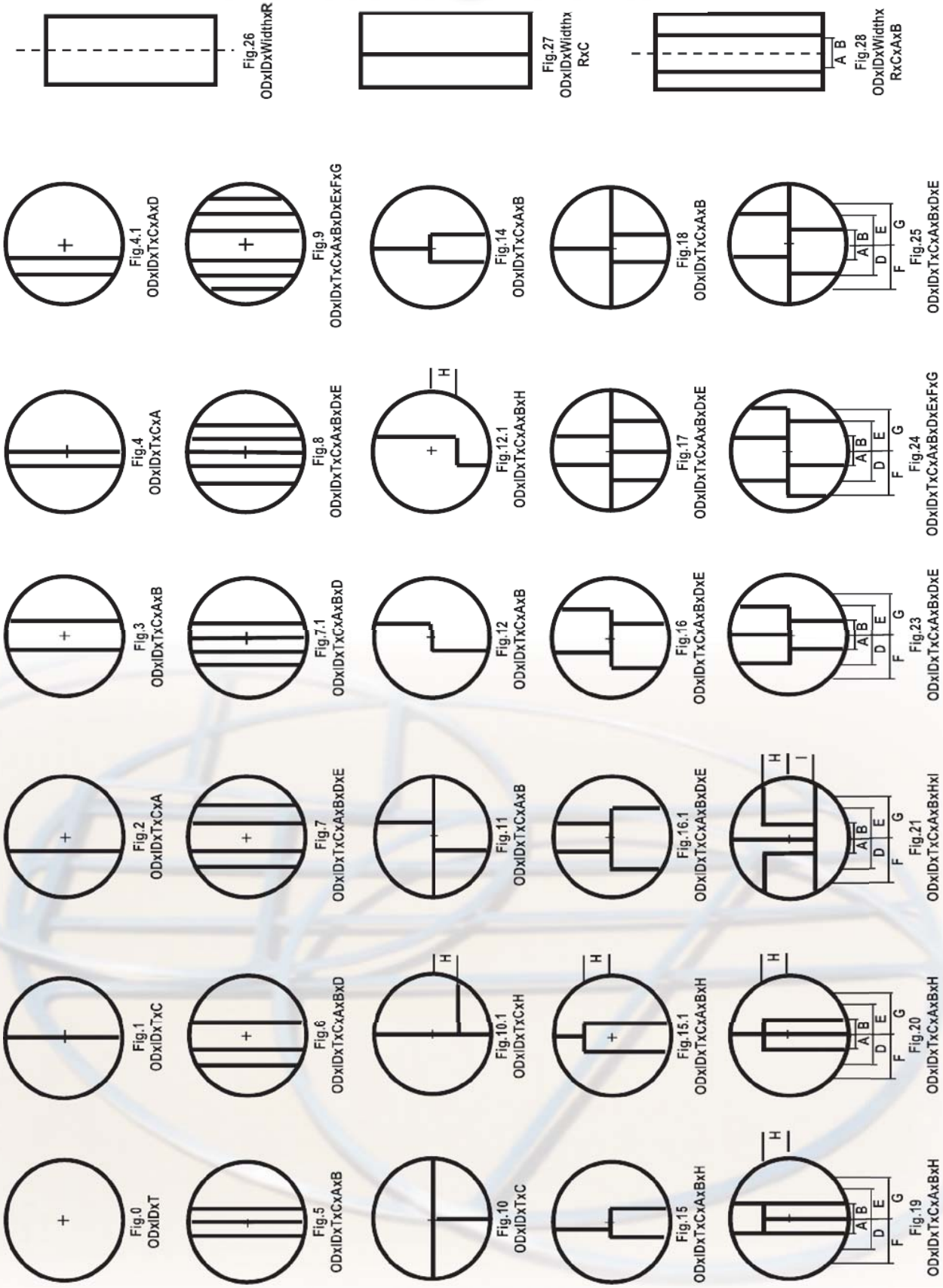
Heat Exchanger Gaskets

Heat Exchanger Gasket Standard Shapes



Note: OD (Outer Dia) , ID (Inner Dia) , T (Thickness) , C (Bar Width) , A,B,D,E,F,G (Distance from Center) , H (Offset from Center) , R (Radius at corners)

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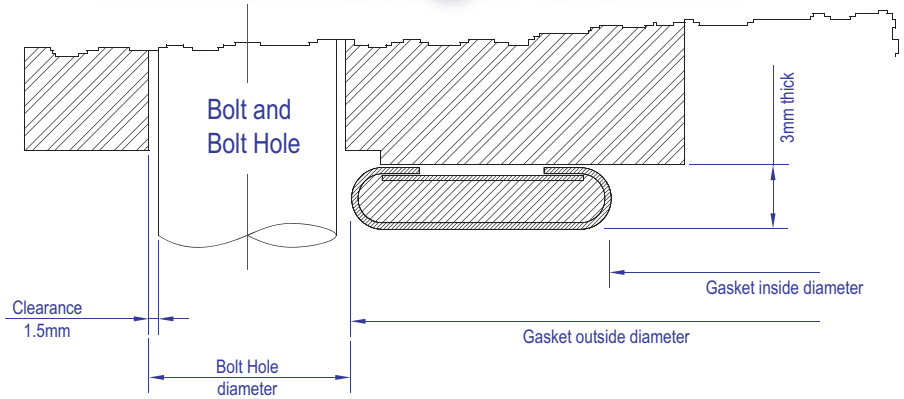

DIMENSIONS FOR JACKETED GASKETS USED WITH ASME/ANSI B16.5 FLANGES

Flange Size (NPS)		Gasket Inside Diameter	GASKET OUTSIDE DIAMETER BY CLASS						
INCH	MM		150	300	400	600	900	1500	2500
1/2	15	22.4	44.5	50.8	50.8	50.8	60.5	60.5	66.8
3/4	20	28.7	54.1	63.5	63.5	63.5	66.8	66.8	73.2
1	25	38.1	63.5	69.9	69.9	69.9	76.2	76.2	82.6
1¼	32	47.8	73.2	79.5	79.5	79.5	85.9	85.9	101.6
1½	40	54.1	82.6	92.2	92.2	92.2	95.3	95.3	114.3
2	50	73.2	101.6	108.0	108.0	108.0	139.7	139.7	143.0
2½	65	85.9	120.7	127.0	127.0	127.0	162.0	162.0	165.1
3	80	108.0	133.4	146.1	146.1	146.1	165.1	171.5	193.8
4	100	131.8	171.5	177.8	174.8	190.5	203.2	206.5	231.9
5	125	152.4	193.8	212.9	209.6	238.3	244.6	251.0	276.4
6	150	190.5	219.2	247.7	244.6	263.7	285.8	279.4	314.5
8	200	238.2	276.4	304.8	301.8	317.5	355.6	349.3	384.3
10	250	285.8	336.6	358.9	355.6	397.0	431.8	431.8	473.2
12	300	342.9	406.4	419.1	416.0	454.2	495.3	517.7	546.1
14	350	374.7	447.8	482.6	479.6	489.0	517.7	574.8	—
16	400	425.5	511.3	536.7	533.4	562.1	571.5	638.3	—
18	450	489.0	546.1	593.9	590.6	609.6	635.0	701.8	—
20	500	533.4	603.3	651.0	644.7	679.5	695.5	752.6	—
24	600	641.4	714.5	771.7	765.3	787.4	835.2	898.7	—

DIMENSIONS FOR JACKETED GASKETS USED WITH ASME/ANSI B16.47 SERIES A FLANGES

Flange Size (NPS)		Gasket Inside Diameter	GASKET OUTSIDE DIAMETER BY CLASS				
INCH	MM		150	300	400	600	900
26	650	673.1	771.7	831.9	828.8	863.6	879.6
28	700	723.9	828.8	895.4	889.0	911.4	943.1
30	750	774.7	879.6	949.5	943.1	968.5	1006.6
32	800	825.5	936.8	1003.3	1000.3	1019.3	1070.1
34	850	876.3	987.6	1054.1	1051.1	1070.1	1133.6
36	900	927.1	1044.7	1114.6	1114.6	1127.3	1197.1
38	950	977.9	1108.2	1051.1	1070.1	1101.9	1197.1
40	1000	1028.7	1159.0	1111.3	1124.0	1152.7	1247.9
42	1050	1079.5	1216.2	1162.1	1174.8	1216.2	1298.7
44	1100	1130.3	1273.3	1216.2	1228.9	1267.0	1365.3
46	1150	1181.1	1324.1	1270.0	1286.0	1324.1	1432.1
48	1200	1231.9	1381.3	1320.8	1343.2	1387.6	1482.9
50	1250	1282.7	1432.1	1374.9	1400.3	1444.8	—
52	1300	1333.5	1489.2	1425.7	1451.1	1495.6	—
54	1350	1384.3	1546.4	1489.2	1514.6	1552.7	—
56	1400	1435.1	1603.5	1540.0	1565.4	1603.5	—
58	1450	1485.9	1660.7	1590.8	1616.2	1660.7	—
60	1500	1536.7	1711.5	1641.6	1679.7	1730.5	—

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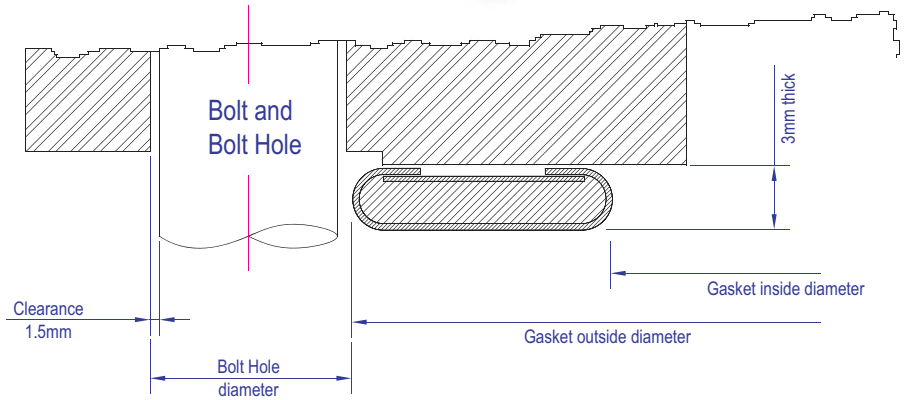

DIMENSIONS FOR JACKETED GASKETS USED WITH ASME/ANSI B16.47 SERIES B FLANGES							
Flange Size (NPS)		Gasket Inside Diameter	GASKET OUTSIDE DIAMETER BY CLASS				
INCH	MM		150	300	400	600	900
26	650	673.1	722.4	768.4	743.0	762.0	835.2
28	700	723.9	773.2	822.5	797.1	816.1	898.7
30	750	774.7	824.0	882.7	854.2	876.3	955.8
32	800	825.5	877.8	936.8	908.1	930.4	1013.0
34	850	876.3	931.9	990.6	958.9	993.9	1070.1
36	900	927.1	984.3	1044.7	1019.3	1044.7	1120.9
38	950	977.9	1041.4	1095.5	1070.1	1101.9	1197.1
40	1000	1028.7	1092.2	1146.3	1124.0	1152.7	1247.9
42	1050	1079.5	1143.0	1197.1	1174.8	1216.2	1298.7
44	1100	1130.3	1193.8	1247.9	1228.9	1267.0	1365.3
46	1150	1181.1	1252.4	1314.5	1286.0	1324.1	1432.1
48	1200	1231.9	1303.3	1365.3	1343.2	1387.6	1482.9
50	1250	1282.7	1354.1	1416.1	1400.3	1444.8	—
52	1300	1333.5	1404.9	1466.9	1451.1	1495.6	—
54	1350	1384.3	1460.5	1527.3	1514.6	1552.7	—
56	1400	1435.1	1511.3	1590.8	1565.4	1603.5	—
58	1450	1485.9	1576.3	1652.5	1616.2	1660.7	—
60	1500	1536.7	1627.1	1703.3	1679.7	1730.5	—

MANUFACTURING TOLERANCES FOR ASME/ANSI JACKETED GASKETS		
CHARACTERISTICS	TOLERANCES	
	≤ 24”	≥ 26”
OUTSIDE DIAMETER	+1.6 MM, -0	+3.3 MM, -0
INSIDE DIAMETER	+1.6 MM, -0	+3.3 MM, -0
THICKNESS	+0.8 MM, -0	+0.8 MM, -0

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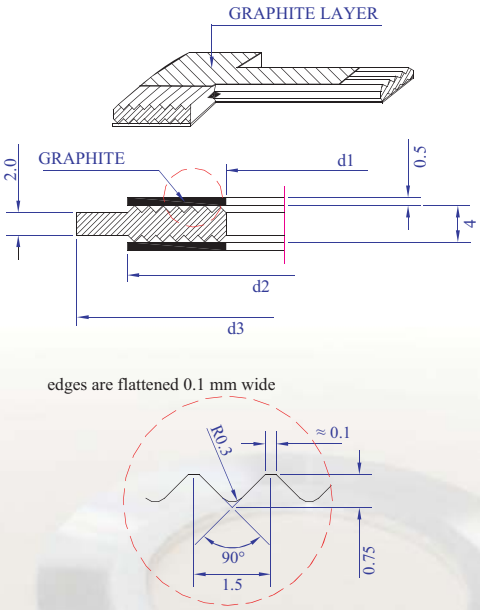
Camprofile Gaskets

The Al-Iman ICP camprofile gaskets are very effective for sealing flanged connections and are particularly suited to applications where high temperature, pressures and fluctuating conditions are encountered.

The types of material are:

Principal Metals	Other Metals
Type 304 S/S	Soft Iron
Type 304L S/S	Carbon Steel
Type 316 S/S	F5 Alloy Steel
Type 316L S/S	Monel
Type 321 S/S	Inconel
	Titanium



FORM	SECTION
A	
B	
C	
D	
E	
F	
G	
H	

GASKET DIMENSIONS FOR FLANGES TO ANSI B16.5 150 LBS TO 2500 LBS

Dimensions in mm

Dimension in mm		Gasket Contact Width	Inside Diameter	Gasket Contact Outside Diameter	Centering Ring Outside Diameter d3						
(mm)	(in)	W	d1	d2	150	300	400	600	900	1500	2500
15	½	4.83	21.34	30.99	47.75	53.85	53.85	53.85	63.50	63.50	69.85
20	¾	4.83	26.92	36.58	57.15	66.55	66.55	66.55	69.85	69.85	76.20
25	1	6.35	33.27	45.97	66.55	73.15	73.15	73.15	79.25	79.25	85.85
32	1 ¼	7.87	42.16	57.91	76.20	82.55	82.55	82.55	88.90	88.90	104.65
40	1 ½	9.65	48.51	67.56	85.85	95.25	95.25	95.25	98.55	98.55	117.35
50	2	9.65	60.45	79.25	104.65	111.25	111.25	111.25	142.75	142.75	146.05
65	2 ½	9.65	71.88	91.95	123.95	130.05	130.05	130.05	165.10	165.10	168.15
80	3	9.65	88.90	107.95	136.65	149.35	149.35	148.08	168.15	174.75	196.85
90	3 ½	7.95	101.60	120.65	162.05	165.10	162.05	162.05	-	-	-
100	4	12.70	114.30	139.70	174.75	180.85	177.80	193.55	206.25	209.55	234.95
125	5	12.70	141.22	166.62	196.85	215.90	212.85	241.30	247.65	254.00	279.40
150	6	12.70	168.15	193.55	222.25	250.95	247.65	266.70	289.05	282.45	317.50
200	8	15.75	218.95	250.95	279.40	307.85	304.80	320.55	358.65	352.55	387.35
250	10	19.05	273.05	311.15	339.85	361.95	358.65	400.05	434.85	434.85	476.25
300	12	19.05	323.85	361.95	409.45	422.15	419.10	457.20	498.35	520.70	549.15
350	14	19.05	355.60	393.70	450.85	485.65	482.60	492.25	520.70	577.85	-
400	16	22.35	406.40	450.85	514.35	539.75	536.45	565.15	574.55	641.35	-
450	18	22.35	457.20	501.65	549.15	596.90	593.85	612.65	638.05	704.85	-
500	20	25.40	508.00	558.80	606.55	654.05	647.70	682.75	698.50	755.65	-
600	24	25.40	609.60	660.40	717.55	774.70	768.35	790.45	838.20	901.70	-

TOLERANCES			
DESCRIPTION	d1	d2	d3
OUTER DIA UPTO 600MM (24")	±0.8	±0.8	-0.8 /+0
OUTER DIA 600MM TO 1200MM	±1.2	±1.2	-0.8 /+0
OUTER DIA ABOVE 1200MM	±1.6	±1.6	-1.2 /+0

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Camprofile Gaskets

DIMENSIONS SUITABLE FOR ASME B16.47 SERIES A (Formerly MSS-SP44) AND BS 3293

Dimensions in mm

Dimensions in mm				PN 20	PN 50	PN 68	PN 100	PN 150
				150 lbs	300 lbs	400 lbs	600 lbs	900 lbs
DN (mm)	DN (inch)	d1	d2	d3				
650	26	690	740	772	832	829	864	880
700	28	740	790	829	895	889	911	943
750	30	800	850	880	949	943	968	1007
800	32	845	905	937	1003	1000	1019	1070
850	34	895	955	987	1054	1051	1070	1134
900	36	950	1010	1045	1114	1114	1127	1197
950	38	960	1020	1108	1051	1070	1102	1197
1000	40	1015	1075	1159	1111	1124	1153	1248
1050	42	1065	1125	1216	1162	1175	1216	1299
1100	44	1125	1185	1273	1216	1229	1267	1365
1150	46	1175	1235	1324	1270	1286	1324	1432
1200	48	1220	1290	1381	1321	1343	1388	1483
1250	50	1270	1350	1432	1375	1400	1445	-
1300	52	1320	1400	1489	1426	1451	1495	-
1350	54	1375	1455	1546	1489	1515	1553	-
1400	56	1430	1510	1603	1540	1565	1610	-
1450	58	1485	1565	1661	1591	1616	1661	-
1500	60	1535	1615	1711	1642	1680	1730	-

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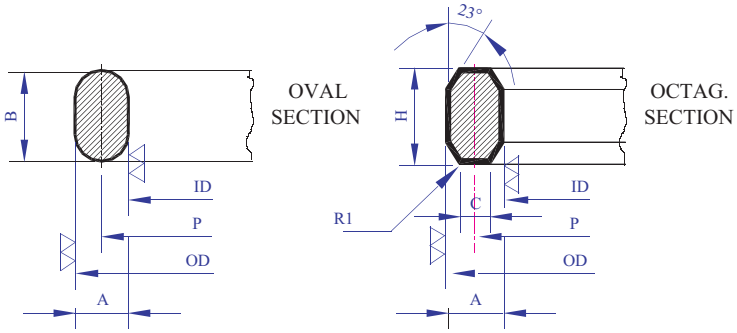
Metal Ring Joints Type R

The Al-Iman IRTJ type R metal ring joint gaskets are manufactured according to ASME B16.20 : 1998 and API 6A. The type R oval configuration was the original design and was followed by the type R octagonal which offered more specific contact areas.
The principal types of material are:

Metal	Maximum Hardness
Soft Iron	90 BHN
Low Carbon Steel	120 BHN
F5 Alloy Steel	130 BHN
Type 410 S/S	170 BHN
Type 304 S/S	160 BHN
Type 304L S/S	160 BHN
Type 316 S/S	160 BHN
Type 316L S/S	160 BHN
Type 347 S/S	160 BHN
Type 321 S/S	160 BHN



NOTE:
1. All dimensions are in mm.
2. R30 is suitable for lapped flanges only.
3. Class 720, 960 and 10000 flanges to API 6B are obsolete. Data is for information only.
4. The 23° surfaces shall have surface finish no rougher than 1.6 µm (63 µin RMS).
5. B,H Variation in height throughout the entire circumference shall not exceed 0.5mm.

TYPE "R" Ring Gaskets - according to ASME B16.20 : 1998 / API 6A:2004

ASME B16.20:1998: Table:3 and API 6a 19th Ed.:2004 ;Clause 10.4.2.1 Table 50

NOMINAL PIPE SIZE / NOMINAL PRESSURE

Dimensions in millimetres

ASME/ANSI B16.5					API 6B				ASME B16.47 Series A			RING NUMBER	OUTSIDE DIA. OF RING OD ±0.38	INSIDE DIA. OF RING ID	PITCH DIAMETER OF RING P ±0.18	HEIGHT OF RING OVAL B ±0.39	HEIGHT OF RING OCTA. H ±0.39	WIDTH OF RING A ±0.20	WIDTH OF FLAT OF OCTA. RING C ±0.20	Radius in Oct. Ring R_1 ±0.50	WEIGHT	
150	300-600	900	1500	2500	720-960	2000	3000	5000	150	300-600	900										OVAL Kgs.	OCTA Kgs.
	½											R11	40.49	27.79	34.14	11.18	9.65	6.35	4.32	1.5	0.05	0.05
		½	½									R12	47.65	31.75	39.7	14.22	12.7	7.95	5.23	1.5	0.10	0.10
	¾			½								R13	50.83	34.93	42.88	14.22	12.7	7.95	5.23	1.5	0.10	0.10
		¾	¾									R14	52.4	36.5	44.45	14.22	12.7	7.95	5.23	1.5	0.11	0.11
1												R15	55.58	39.67	47.63	14.22	12.7	7.95	5.23	1.5	0.12	0.11
	1	1	1	¾	1	1	1	1				R16	58.75	42.85	50.8	14.22	12.7	7.95	5.23	1.5	0.12	0.11
1¼												R17	65.1	49.2	57.15	14.22	12.7	7.95	5.23	1.5	0.14	0.13
	1¼	1¼	1¼	1	1¼	1¼	1¼	1¼				R18	68.28	52.37	60.33	14.22	12.7	7.95	5.23	1.5	0.15	0.14
1½												R19	73.05	57.15	65.1	14.22	12.7	7.95	5.23	1.5	0.16	0.15
	1½	1½	1½		1½	1½	1½	1½				R20	76.23	60.33	68.28	14.22	12.7	7.95	5.23	1.5	0.17	0.15
				1¼								R21	83.36	61.11	72.24	17.53	16	11.13	7.75	1.5	0.30	0.29
2												R22	90.5	74.6	82.55	14.22	12.7	7.95	5.23	1.5	0.20	0.19
	2			1½	2	2						R23	93.68	71.42	82.55	17.53	16	11.13	7.75	1.5	0.34	0.33
		2	2				2	2				R24	106.38	84.12	95.25	17.53	16	11.13	7.75	1.5	0.39	0.38
2½												R25	109.55	93.65	101.6	14.22	12.7	7.95	5.23	1.5	0.25	0.23
	2½			2	2½	2½						R26	112.73	90.47	101.6	17.53	16	11.13	7.75	1.5	0.42	0.41
		2½	2½				2½	2½				R27	119.08	96.82	107.95	17.53	16	11.13	7.75	1.5	0.45	0.43
				2½								R28	123.83	98.43	111.13	19.05	17.53	12.7	8.66	1.5	0.57	0.55
3												R29	122.25	106.35	114.3	14.22	12.7	7.95	5.23	1.5	0.28	0.26
	3											R30 (2)	128.6	106.35	117.48	17.53	16	11.13	7.75	1.5	0.48	0.47
	3	3			3	3	3					R31	134.95	112.7	123.83	17.53	16	11.13	7.75	1.5	0.51	0.50
				3								R32	139.7	114.3	127	19.05	17.53	12.7	8.66	1.5	0.65	0.63
3½												R33	139.73	123.83	131.78	14.22	12.7	7.95	5.23	1.5	0.32	0.30
	3½											R34	142.9	120.65	131.78	17.53	16	11.13	7.75	1.5	0.54	0.52
			3					3				R35	147.65	125.4	136.53	17.53	16	11.13	7.75	1.5	0.56	0.55
4												R36	157.18	141.27	149.23	14.22	12.7	7.95	5.23	1.5	0.37	0.34
	4	4			4	4	4	3½				R37	160.35	138.1	149.23	17.53	16	11.13	7.75	1.5	0.62	0.60
				4								R38	173.05	141.3	157.18	22.35	20.57	15.88	10.49	1.5	1.16	1.14
			4					4				R39	173.05	150.8	161.93	17.53	16	11.13	7.75	1.5	0.67	0.65
5												R40	179.4	163.5	171.45	14.22	12.7	7.95	5.23	1.5	0.42	0.39
	5	5			5	5	5					R41	192.1	169.85	180.98	17.53	16	11.13	7.75	1.5	0.75	0.73
				5								R42	209.55	171.45	190.5	25.4	23.88	19.05	12.32	1.5	1.91	1.88
6												R43	201.63	185.72	193.68	14.22	12.7	7.95	5.23	1.5	0.48	0.44
			5					5				R44	204.8	182.55	193.68	17.53	16	11.13	7.75	1.5	0.80	0.78
	6	6			6	6	6					R45	222.28	200.03	211.15	17.53	16	11.13	7.75	1.5	0.87	0.85
			6					6				R46	223.85	198.45	211.15	19.05	17.53	12.7	8.66	1.5	1.08	1.05
				6								R47	247.65	209.55	228.6	25.4	23.88	19.05	12.32	1.5	2.29	2.26
8												R48	255.6	239.7	247.65	14.22	12.7	7.95	5.23	1.5	0.61	0.56
	8	8			8	8	8					R49	281	258.75	269.88	17.53	16	11.13	7.75	1.5	1.11	1.09
			8					8				R50	285.75	254	269.88	22.35	20.57	15.88	10.49	1.5	1.99	1.95

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Metal Ring Joints Type R

TYPE "R" Ring Gaskets - according to ASME B16.20 : 1998 / API 6A:2004

ASME B16.20:1998; Table:3 and API 6a 19 th Ed.:2004 ;Clause 10.4.2.1 Table 50

NOMINAL PIPE SIZE / NOMINAL PRESSURE

Dimensions in millimetres

ASME/ANSI B16.5					API 6B				ASME B16.47 Series A			RING NUMBER	OUTSIDE DIA. OF RING OD ±0.38	INSIDE DIA. OF RING ID	PITCH DIAMETER OF RING P ±0.18	HEIGHT OF RING OVAL B ±0.39	HEIGHT OF RING OCTA. H ±0.39	WIDTH OF RING A ±0.20	WIDTH OF FLAT OF OCTA. RING C ±0.20	Radius in Oct. Ring R_1 ±0.50	WEIGHT	
150	300-600	900	1500	2500	720-960	2000	3000	5000	150	300-600	900										OVAL Kgs.	OCTA Kgs.
				8								R51	301.63	257.18	279.4	28.7	26.92	22.23	14.81	1.5	3.65	3.69
10												R52	312.75	296.85	304.8	14.22	12.7	7.95	5.23	1.5	0.75	0.69
	10	10			10	10	10					R53	334.98	312.72	323.85	17.53	16	11.13	7.75	1.5	1.34	1.30
			10					10				R54	339.73	307.98	323.85	22.35	20.57	15.88	10.49	1.5	2.39	2.35
				10								R55	371.48	314.33	342.9	36.58	35.05	28.58	19.81	2.3	7.35	7.68
12												R56	388.95	373.05	381	14.22	12.7	7.95	5.23	1.5	0.93	0.87
	12	12			12	12	12			12	12	R57	392.13	369.87	381	17.53	16	11.13	7.75	1.5	1.57	1.53
			12									R58	403.23	358.78	381	28.7	26.92	22.23	14.81	1.5	4.98	5.03
14												R59	404.83	388.92	396.88	14.22	12.7	7.95	5.23	1.5	0.98	0.90
				12								R60	438.15	374.65	406.4	39.62	38.1	31.75	22.33	2.3	10.47	11.09
	14				14	14	14			14		R61	430.23	407.97	419.1	17.53	16	11.13	7.75	1.5	1.73	1.69
		14									14	R62	434.98	403.23	419.1	22.35	20.57	15.88	10.49	1.5	3.09	3.04
			14									R63	444.5	393.7	419.1	33.27	31.75	25.4	17.3	2.3	7.33	7.54
16												R64	461.98	446.07	454.03	14.22	12.7	7.95	5.21	1.5	1.12	1.03
	16				16	16				16		R65	481.03	458.77	469.9	17.53	16	11.13	7.75	1.5	1.94	1.89
		16					16				16	R66	485.78	454.03	469.9	22.35	20.57	15.88	10.49	1.5	3.47	3.40
			16									R67	498.48	441.33	469.9	36.58	35.05	28.58	19.81	2.3	10.07	10.53
18												R68	525.48	509.57	517.53	14.22	12.7	7.95	5.23	1.5	1.28	1.18
	18				18	18				18		R69	544.53	522.27	533.4	17.53	16	11.13	7.75	1.5	2.20	2.15
		18					18				18	R70	552.45	514.35	533.4	25.4	23.88	19.05	12.32	1.5	5.35	5.27
			18									R71	561.98	504.83	533.4	36.58	35.05	28.58	19.81	2.3	11.43	11.95
20												R72	566.75	550.85	558.80	14.22	12.70	7.95	5.23	1.5	1.38	1.27
	20				20	20				20		R73	596.90	571.50	584.20	19.05	17.53	12.70	8.66	1.5	2.99	2.92
		20					20				20	R74	603.25	565.15	584.20	25.40	23.88	19.05	12.32	1.5	5.85	5.77
			20									R75	615.95	552.45	584.20	39.62	38.10	31.75	22.33	2.3	15.05	15.94
24												R76	681.05	665.15	673.10	14.22	12.70	7.95	5.23	1.5	1.66	1.53
	24									24		R77	708.03	676.28	692.15	22.35	20.57	15.88	10.49	1.5	5.11	5.01
		24									24	R78	717.55	666.75	692.15	33.27	31.75	25.40	17.30	2.3	12.10	12.46
			24									R79	727.08	657.23	692.15	44.45	41.40	34.93	24.82	2.3	22.58	22.06
									22			R80	623.90	608.00	615.95	-	12.70	7.95	5.23	1.5	1.52	1.40
										22		R81	649.30	620.70	635.00	-	19.05	14.30	9.58	1.5	4.05	3.86
								1				R82	68.28	46.02	57.15	-	16.00	11.13	7.75	1.5	-	0.23
								1½				R84	74.63	52.37	63.50	-	16.00	11.13	7.75	1.5	-	0.25
								2				R85	92.08	66.68	79.38	-	17.53	12.70	8.66	1.5	-	0.40
								2½				R86	106.38	74.63	90.50	-	20.57	15.88	10.49	1.5	-	0.65
								3				R87	115.90	84.15	100.03	-	20.57	15.88	10.49	1.5	-	0.72
								4				R88	142.88	104.78	123.83	-	23.88	19.05	12.32	1.5	-	1.22
								3½				R89	133.35	95.25	114.30	-	23.88	19.05	12.32	1.5	-	1.13
								5				R90	177.80	133.35	155.58	-	26.92	22.23	14.81	1.5	-	2.05
								10				R91	292.10	228.60	260.35	-	38.10	31.75	22.33	2.3	-	7.10
												R92	239.73	217.47	228.60	17.53	16.00	11.13	7.75	1.5	0.94	0.92
										26		R93	768.35	730.25	749.30	-	23.88	19.05	12.32	1.5	0.94	0.92
										28		R94	819.15	781.05	800.10	-	23.88	19.05	12.32	1.5	-	7.40
										30		R95	876.30	838.20	857.25	-	23.88	19.05	12.32	1.5	-	7.90
										32		R96	936.63	892.18	914.40	-	26.92	22.23	14.81	1.5	-	8.47
										34		R97	987.43	942.98	965.20	-	26.92	22.23	14.81	1.5	-	12.08
										36		R98	1,044.58	1,000.13	1,022.35	-	26.92	22.23	14.81	1.5	-	12.75
						8	8					R99	246.08	223.82	234.95	-	16.00	11.13	7.75	2.3	-	13.51
											26	R100	777.88	720.73	749.30	-	35.05	28.58	19.81	2.3	-	0.95
											28	R101	831.85	768.35	800.10	-	38.10	31.75	22.33	2.3	-	16.79
											30	R102	889.00	825.50	857.25	-	38.10	31.75	22.33	2.3	-	21.83
											32	R103	946.15	882.65	914.40	-	38.10	31.75	22.33	2.3	-	23.39
											34	R104	1,000.13	930.28	965.20	-	41.40	34.93	24.82	2.3	-	24.95
											36	R105	1,057.28	987.43	1,022.35	-	41.40	34.93	24.82	2.3	-	31.49

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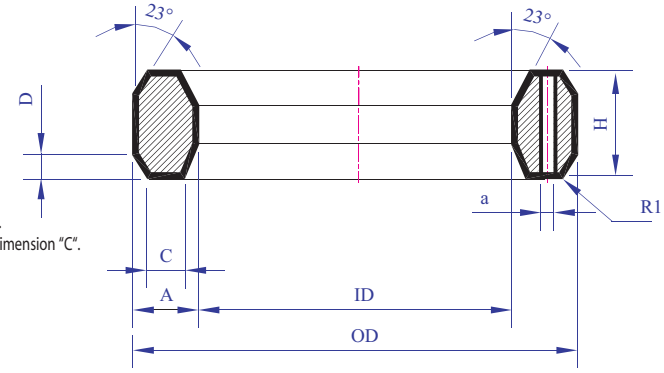
Metal Ring Joints Type RX

The Al-Iman IRTJ type RX metal ring joint gaskets are manufactured according to ASME B16.20 : 1998 and API 6A. The type RX series is of higher strength materials designed primarily for well-head pressures of 700 bar and beyond.



NOTE:
1) All 23° surfaces on R and RX gaskets shall have a surface finish no rougher than 1.6µm Ra (63 µin RMS).
2) One pressure-passage hole illustrated in fig.1 < a >. Centerline of hole shall be located at midpoint of dimension "C".
3) Tolerance on these dimensions is +0, -0.38
4) Tolerance on these dimensions is +0.50, -0
5) Class 720,960, and 2900 flanges to API 6B are obsolete. Data is for information only.
6) Crossover flange connection.
7) A plus tolerance of 0.20 mm for width "A" and height "H " is permitted, provided the variation in width or height of any ring does not exceed 0.10 mm throughout its entire circumference.

TYPE "RX" Ring Gaskets - according to ASME B16.20:1998 of Table: 5 and
TYPE RX Pressure Energized Ring Gasket - according to API 6A 19th Ed.:2004 Clause 10.4.2.1 Table: 51

NOMINAL PIPE SIZE / NOMINAL PRESSURE API 6B				RING NUMBER	OUTSIDE DIA. OF RING OD +0.50, 0	ID	PITCH DIA. OF RING P ±0.13	HEIGHT OF RING H (7) +0.20, 0	WIDTH OF RING A (7) +0.20, 0	WIDTH OF FLAT C +0.15, 0	HEIGHT OF OUTSIDE BEVEL D +0.50, -0	RADIUS IN RING R_1 ±0.50	HOLE DIAMETER a +0.50, 0	WEIGHT OCTA Kgs.
720-960 2000psi (6)	2900 psi (6)	3000 psi	5000 psi											
1½		1½	1½	Rx 20	76.20	58.72	68.26	19.05	8.74	4.62	3.18	1.5	N/A	0.24
2				Rx 23	93.27	69.44	82.55	25.40	11.91	6.45	4.24	1.5	N/A	0.52
		2	2	Rx 24	105.97	82.14	95.25	25.40	11.91	6.45	4.24	1.5	N/A	0.60
			3⅛	Rx 25	109.55	92.08	101.60	19.05	8.74	4.62	3.18	1.5	N/A	0.50
2½				Rx 26	111.91	88.09	101.60	25.40	11.91	6.45	4.24	1.5	N/A	0.64
		2½	2½	Rx 27	118.26	94.44	107.95	25.40	11.91	6.45	4.24	1.5	N/A	0.68
3		3		Rx 31	134.54	110.72	123.83	25.40	11.91	6.45	4.24	1.5	N/A	0.78
			3	Rx 35	147.24	123.42	136.53	25.40	11.91	6.45	4.24	1.5	N/A	0.86
4		4		Rx 37	159.94	136.12	149.23	25.40	11.91	6.45	4.24	1.5	N/A	0.95
			4	Rx 39	172.64	148.82	161.93	25.40	11.91	6.45	4.24	1.5	N/A	1.03
5		5		Rx 41	191.69	167.87	180.98	25.40	11.91	6.45	4.24	1.5	N/A	1.15
			5	Rx 44	204.39	180.57	193.68	25.40	11.91	6.45	4.24	1.5	N/A	1.23
6		6		Rx 45	221.84	198.02	211.15	25.40	11.91	6.45	4.24	1.5	N/A	1.34
			6	Rx 46	222.25	195.28	211.15	28.58	13.49	6.68	4.78	1.5	N/A	1.66
			8 (6)	Rx 47	245.26	205.59	228.60	41.28	19.84	10.34	6.88	2.3	N/A	3.88
8		8		Rx 49	280.59	256.77	269.88	25.40	11.91	6.45	4.24	1.5	N/A	1.72
			8	Rx 50	283.36	250.04	269.88	31.75	16.66	8.51	5.28	1.5	N/A	2.43
10		10		Rx 53	334.57	310.74	323.85	25.40	11.91	6.45	4.24	1.5	N/A	2.06
			10	Rx 54	337.34	304.01	323.85	31.75	16.66	8.51	5.28	1.5	N/A	2.92
12		12		Rx 57	391.72	367.89	381.00	25.40	11.91	6.45	4.24	1.5	N/A	2.42
			14	Rx 63	441.73	387.73	419.10	50.80	27.00	14.78	8.46	2.3	N/A	11.96
16				Rx 65	480.62	456.79	469.90	25.40	11.91	6.45	4.24	1.5	N/A	3.00
		16		Rx 66	457.99	424.66	469.90	31.75	16.66	8.51	5.28	1.5	N/A	4.25
18				Rx 69	544.12	520.29	533.40	25.40	11.91	6.45	4.24	1.5	N/A	3.41
		18		Rx 70	550.06	510.39	533.40	41.28	19.84	10.34	6.88	2.3	N/A	9.12
20				Rx 73	596.11	569.14	584.20	31.75	13.49	6.68	5.28	1.5	N/A	5.27
		20		Rx 74	600.86	561.19	584.20	41.28	19.84	10.34	6.88	2.3	N/A	10.01
	1			Rx 82	67.87	44.04	57.15	25.40	11.91	6.45	4.24	1.5	1.5	0.36
	1½			Rx 84	74.22	50.39	63.50	25.40	11.91	6.45	4.24	1.5	1.5	0.40
	2			Rx 85	90.09	63.12	79.38	25.40	13.49	6.68	4.24	1.5	1.5	0.40
	2½			Rx 86	103.58	73.41	90.50	28.58	15.09	8.51	4.78	1.5	2.4	0.81
	3			Rx 87	113.11	82.93	100.03	28.58	15.09	8.51	4.78	1.5	2.4	0.90
	4			Rx 88	139.29	104.34	123.83	31.75	17.48	10.34	5.28	1.5	3.0	1.46
	3½			Rx 89	129.77	93.24	114.30	31.75	18.26	10.34	5.28	1.5	3.0	3.09
	5			Rx 90	174.63	134.95	155.58	44.45	19.84	12.17	7.42	2.3	3.0	7.75
	10			Rx 91	286.94	226.59	260.35	45.24	30.18	19.81	7.54	2.3	3.0	1.50
8 (6)		8 (6)		Rx 99	245.67	221.84	234.95	25.40	11.91	6.45	4.24	1.5	N/A	2.20
			1⅜	Rx 201	51.46	39.98	46.05	11.30	5.74	3.20	1.45 (3)	0.5 (4)	N/A	0.10
			1-13/16	Rx 205	62.31	51.18	57.15	11.10	5.56	3.05	1.83 (3)	0.5 (4)	N/A	0.13
			2-9/16	Rx 210	97.64	78.59	88.90	19.05	9.53	5.41	3.18 (3)	0.8 (4)	N/A	0.35
			4-1/16	Rx 215	140.89	117.07	130.18	25.40	11.91	5.33	4.24 (3)	1.5 (4)	N/A	0.80

All dimensions in mm

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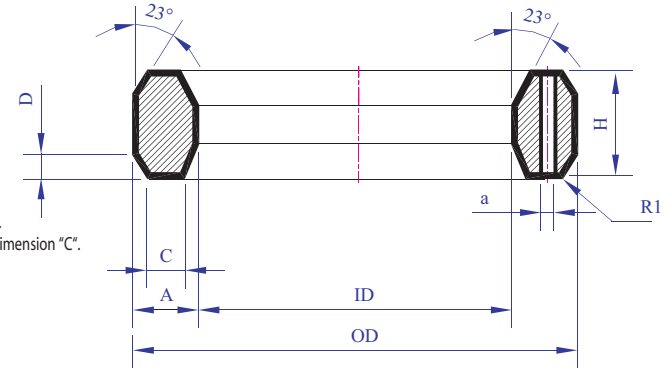
Metal Ring Joints Type RX

The Al-Iman IRTJ type RX metal ring joint gaskets are manufactured according to ASME B16.20 : 1998 and API 6A. The type RX series is of higher strength materials designed primarily for well-head pressures of 700 bar and beyond.



NOTE:
1) All 23° surfaces on R and RX gaskets shall have a surface finish no rougher than 1.6µm Ra (63 µin RMS).
2) One pressure-passage hole illustrated in fig.1 < a >. Centerline of hole shall be located at midpoint of dimension "C".
3) Tolerance on these dimensions is +0, -0.38
4) Tolerance on these dimensions is +0.50, -0
5) Class 720,960, and 2900 flanges to API 6B are obsolete. Data is for information only.
6) Crossover flange connection.
7) A plus tolerance of 0.20 mm for width "A" and height "H " is permitted, provided the variation in width or height of any ring does not exceed 0.10 mm throughout its entire circumference.

TYPE "RX" Ring Gaskets - according to ASME B16.20:1998 of Table: 5 and
TYPE RX Pressure Energized Ring Gasket - according to API 6A 19th Ed.:2004 Clause 10.4.2.1 Table: 51

NOMINAL PIPE SIZE / NOMINAL PRESSURE API 6B				RING NUMBER	OUTSIDE DIA. OF RING OD +0.50, 0	ID	PITCH DIA. OF RING P ±0.13	HEIGHT OF RING H (7) +0.20, 0	WIDTH OF RING A (7) +0.20, 0	WIDTH OF FLAT C +0.15, 0	HEIGHT OF OUTSIDE BEVEL D +0.50, -0	RADIUS IN RING R_1 ±0.50	HOLE DIAMETER a +0.50, 0	WEIGHT OCTA Kgs.
720-960 2000psi (6)	2900 psi (6)	3000 psi	5000 psi											
1½		1½	1½	Rx 20	76.20	58.72	68.26	19.05	8.74	4.62	3.18	1.5	N/A	0.24
2				Rx 23	93.27	69.44	82.55	25.40	11.91	6.45	4.24	1.5	N/A	0.52
		2	2	Rx 24	105.97	82.14	95.25	25.40	11.91	6.45	4.24	1.5	N/A	0.60
			3⅛	Rx 25	109.55	92.08	101.60	19.05	8.74	4.62	3.18	1.5	N/A	0.50
2½				Rx 26	111.91	88.09	101.60	25.40	11.91	6.45	4.24	1.5	N/A	0.64
		2½	2½	Rx 27	118.26	94.44	107.95	25.40	11.91	6.45	4.24	1.5	N/A	0.68
3		3		Rx 31	134.54	110.72	123.83	25.40	11.91	6.45	4.24	1.5	N/A	0.78
			3	Rx 35	147.24	123.42	136.53	25.40	11.91	6.45	4.24	1.5	N/A	0.86
4		4		Rx 37	159.94	136.12	149.23	25.40	11.91	6.45	4.24	1.5	N/A	0.95
			4	Rx 39	172.64	148.82	161.93	25.40	11.91	6.45	4.24	1.5	N/A	1.03
5		5		Rx 41	191.69	167.87	180.98	25.40	11.91	6.45	4.24	1.5	N/A	1.15
			5	Rx 44	204.39	180.57	193.68	25.40	11.91	6.45	4.24	1.5	N/A	1.23
6		6		Rx 45	221.84	198.02	211.15	25.40	11.91	6.45	4.24	1.5	N/A	1.34
			6	Rx 46	222.25	195.28	211.15	28.58	13.49	6.68	4.78	1.5	N/A	1.66
			8 (6)	Rx 47	245.26	205.59	228.60	41.28	19.84	10.34	6.88	2.3	N/A	3.88
8		8		Rx 49	280.59	256.77	269.88	25.40	11.91	6.45	4.24	1.5	N/A	1.72
			8	Rx 50	283.36	250.04	269.88	31.75	16.66	8.51	5.28	1.5	N/A	2.43
10		10		Rx 53	334.57	310.74	323.85	25.40	11.91	6.45	4.24	1.5	N/A	2.06
			10	Rx 54	337.34	304.01	323.85	31.75	16.66	8.51	5.28	1.5	N/A	2.92
12		12		Rx 57	391.72	367.89	381.00	25.40	11.91	6.45	4.24	1.5	N/A	2.42
			14	Rx 63	441.73	387.73	419.10	50.80	27.00	14.78	8.46	2.3	N/A	11.96
16				Rx 65	480.62	456.79	469.90	25.40	11.91	6.45	4.24	1.5	N/A	3.00
		16		Rx 66	457.99	424.66	469.90	31.75	16.66	8.51	5.28	1.5	N/A	4.25
18				Rx 69	544.12	520.29	533.40	25.40	11.91	6.45	4.24	1.5	N/A	3.41
		18		Rx 70	550.06	510.39	533.40	41.28	19.84	10.34	6.88	2.3	N/A	9.12
20				Rx 73	596.11	569.14	584.20	31.75	13.49	6.68	5.28	1.5	N/A	5.27
		20		Rx 74	600.86	561.19	584.20	41.28	19.84	10.34	6.88	2.3	N/A	10.01
	1			Rx 82	67.87	44.04	57.15	25.40	11.91	6.45	4.24	1.5	1.5	0.36
	1½			Rx 84	74.22	50.39	63.50	25.40	11.91	6.45	4.24	1.5	1.5	0.40
	2			Rx 85	90.09	63.12	79.38	25.40	13.49	6.68	4.24	1.5	1.5	0.40
	2½			Rx 86	103.58	73.41	90.50	28.58	15.09	8.51	4.78	1.5	2.4	0.81
	3			Rx 87	113.11	82.93	100.03	28.58	15.09	8.51	4.78	1.5	2.4	0.90
	4			Rx 88	139.29	104.34	123.83	31.75	17.48	10.34	5.28	1.5	3.0	1.46
	3½			Rx 89	129.77	93.24	114.30	31.75	18.26	10.34	5.28	1.5	3.0	3.09
	5			Rx 90	174.63	134.95	155.58	44.45	19.84	12.17	7.42	2.3	3.0	7.75
	10			Rx 91	286.94	226.59	260.35	45.24	30.18	19.81	7.54	2.3	3.0	1.50
8 (6)		8 (6)		Rx 99	245.67	221.84	234.95	25.40	11.91	6.45	4.24	1.5	N/A	2.20
			1⅜	Rx 201	51.46	39.98	46.05	11.30	5.74	3.20	1.45 (3)	0.5 (4)	N/A	0.10
			1-13/16	Rx 205	62.31	51.18	57.15	11.10	5.56	3.05	1.83 (3)	0.5 (4)	N/A	0.13
			2-9/16	Rx 210	97.64	78.59	88.90	19.05	9.53	5.41	3.18 (3)	0.8 (4)	N/A	0.35
			4-1/16	Rx 215	140.89	117.07	130.18	25.40	11.91	5.33	4.24 (3)	1.5 (4)	N/A	0.80

All dimensions in mm

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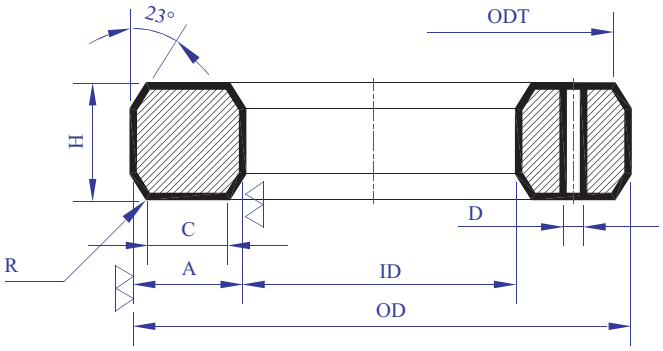
Metal Ring Joints Type BX

The Al-Iman IRTJ type BX metal ring joint gaskets are manufactured according to ASME B16.20 : 1998 and API 6A. The type BX series is of higher strength materials designed primarily for special applications involving high pressures up to 20,000 psi.

NOTE: 1) All 23° surfaces on BX gaskets shall have a surface finish no rougher than 0.8 µm Ra (32 µin RMS).
2) Radius " R " shall be 8 % to 12 % of the gasket height "H ".
One pressure-passage hole required per gasket on centerline. See fig. 1
3) A plus tolerance of 0.20 mm for width "A" and height "H " is permitted, provided the variation in width or height of any ring does not exceed 0.10 mm throughout its entire circumference.



TYPE "BX" Ring Gasket - according to ASME B16.20:1998 of Table: 7 and
TYPE BX Pressure Energized Ring Gasket - according to API 6A 19th Ed.:2004 Clause 10.4.2.1 Table: 52

NOMINAL PIPESIZE / NOMINAL PRESSURE API 6BX						RING NUMBER	OUTSIDE DIA. OF RING OD 0, -0.15	ID	HEIGHT OF RING H(3) +0.20, 0	WIDTH OF RING A(3) +0.20, 0	WIDTH OF FLAT C +0.15, 0	RADIUS IN RING R (2) 8% to 12% Gasket "H"	HOLE DIA. D ±0.50	DIA. OF FLAT ODT ±0.05
2000	3000	5000	10000	15000	20000									
			1-11/16	1-11/16		Bx150	72.19	53.59	9.30	9.30	7.98	0.93	1.6	70.87
			1-13/16	1-13/16	1-13/16	Bx151	76.40	57.15	9.63	9.63	8.26	0.96	1.6	75.03
			2-1/16	2-1/16	2-1/16	Bx152	84.68	64.21	10.24	10.24	8.79	1.02	1.6	83.23
			2-9/16	2-9/16	2-9/16	Bx153	100.94	78.18	11.38	11.38	9.78	1.14	1.6	99.34
			3-1/16	3-1/16	3-1/16	Bx154	116.84	92.05	12.40	12.40	10.64	1.24	1.6	115.08
			4-1/16	4-1/16	4-1/16	Bx155	147.96	119.51	14.22	14.22	12.22	1.42	1.6	145.96
			7-1/16	7-1/16	7-1/16	Bx156	237.92	200.69	18.62	18.62	15.98	1.86	3.2	235.28
			9	9	9	Bx157	294.46	252.50	20.98	20.98	18.01	2.10	3.2	291.49
			11	11	11	Bx158	352.04	305.77	23.14	23.14	19.86	2.31	3.2	348.76
			13⅝	13⅝	13⅝	Bx159	426.72	375.31	25.70	25.70	22.07	2.57	3.2	423.09
		13⅝				Bx160	402.59	375.11	23.83	13.74	10.36	2.38	3.2	399.21
		16¾				Bx161	491.41	459.00	28.07	16.21	12.24	2.81	3.2	487.44
		16¾	16¾	16¾		Bx162	475.49	447.04	14.22	14.22	12.22	1.42	1.6	473.49
		18¾				Bx163	556.16	521.41	30.10	17.37	13.11	3.01	3.2	551.9
			18¾	18¾		Bx164	570.56	521.39	30.10	24.59	20.32	3.01	3.2	566.29
		21¼				Bx165	624.71	587.73	32.03	18.49	13.97	3.20	3.2	620.19
			21¼			Bx166	640.03	587.76	32.03	26.14	21.62	3.20	3.2	635.51
26¾						Bx167	759.36	733.15	35.86	13.11	8.03	3.59	1.6	754.28
	26¾					Bx168	765.25	733.15	35.86	16.05	10.97	3.59	1.6	760.17
			5⅛			Bx169	173.51	147.65	15.85	12.93	10.69	1.58	1.6	171.27
			6⅝	6⅝		Bx170	218.03	189.59	14.22	14.22	12.22	1.42	1.6	216.03
			8-9/16	8-9/16		Bx171	267.44	238.99	14.22	14.22	12.22	1.42	1.6	265.44
			11-5/32	11-5/32		Bx172	333.07	304.62	14.22	14.22	12.22	1.42	1.6	331.07
30	30					Bx303	852.75	818.82	37.95	16.97	11.61	3.79	1.6	847.39

All dimensions in mm

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Graphite Packing

GRAPHITE is characterised by a high level of chemical resistance and thermal stability as well as an excellent sealing effect and constant elasticity. Regardless of temperature cycle this material will not be subject to cold flow, shrinkage or aging. GRAPHITE fulfills the purity requirements for seals in nuclear power station valves (content of soluble chlorides < 20 ppm).

1. Types

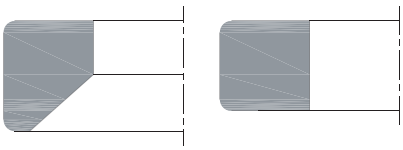
GRAPHITE foil material Approved for use in oxygen applications for pressures up to 250 bar and temperatures up to 200 °C by BAM (German Federal Institute for Material Testing, Berlin). Approved for use in food processing industries by the Chemical and Technical Testing Office, Stuttgart, Ger¬many. Tested by DVGW (German Association of Gas and Water Industry) according to the KTW (plastics - drinking water) recommendations of the BGA (Federal Health Office) for use as sealing elements Dl and D2.

GRAPHITE rings Preformed GRAPHITE rings are supplied in densities between 1,4 and 1,85 g/cm3.

GRAPHITE tape is used to make rings for repair purposes. In order to stabilise the material and to ensure ease of handling the material has a surface pattern and a W-profile.

GRAPHITE cover seals are supplied as preformed rings and have shown their advantages in self-sealing covers, e.g. heavy-duty valves, high-pressure feedwater pre-heaters. GRAPHITE remains elastic even with continually changing temperatures and pressures up to 200 N/mm2 surface compression. It can bridge the large sealing gaps which occur in self-sealing covers up to 0,3 mm without difficulty.

Typical Forms:



2. Application

Valves

3. Operating Conditions

Pressure:	1000 bar
Temperature:	- 200°C to +550 °C1)
	- 200°C to +700 °C2)
	- 200°C to + 2500 °C3)
pH value:	0-14

1) most media and air
2) steam
3) inert gas

4. Media

Hot water and feed water, steam, heat transfer oils, hydrocarbons and many other media. Exceptions: strongly oxidizing media.

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Awards and Citations

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Conversion Factors

Centigrade to Fahrenheit and vice versa

°F	°C/°F	°C	°F	°C/°F	°C	°F	°C/°F	°C	°F	°C/°F	°C
	-459,7	-273,2	-29,2	- 34	-36,7	136,4	58	14,4	302	150	65,6
	-450	-267,8	-25,6	- 32	-35,6	140	60	15,6	305,6	152	66,7
	-440	-262,2	- 22	- 30	-34,4	143,6	62	16,7	309,2	154	67,8
	-430	-256,7	-18,4	- 28	-33,3	147,2	64	17,8	312,8	156	68,9
	-420	-251,1	-14,8	- 26	-32,2	150,8	66	18,9	316,4	158	70
	-410	-245,6	-11,2	- 24	-31,1	154,4	68	20	320	160	71,1
	-400	-240	-7,6	- 22	- 30	158	70	21,1	323,6	162	72,2
	-390	-234,4	- 4	- 20	-28,9	161,6	72	22,2	327,2	164	73,3
	-380	-228,9	-0,4	-18	-27,8	165,2	74	23,3	330,8	166	74,4
	-370	-223,3	+3,2	-16	-26,7	168,8	76	24,4	334,4	168	75,6
	-360	-217,8	6,8	-14	-25,6	172,4	78	25,6	338	170	76,7
	-350	-212,2	10,4	-12	-24,4	176	80	26	341,6	172	77,8
	-340	-206,7	14	- 10	-23,3	179,6	82	27,8	345,2	174	78,9
	-330	-201,1	17,6	- 8	-22,2	183,2	84	28,9	348,8	176	80
	-320	- 195,6	21,2	-6	-21,1	186,8	86	30	352,4	178	81,1
	-310	-190	24,8	- 4	- 20	190,4	88	31,1	356	180	82,2
	-300	-184,3	28,4	- 2	-18,9	194	90	32,2	359,6	182	83,3
	-290	-178,9	32	0	-17,8	197,6	92	33,3	363,2	184	84,4
	-280	-173,3	35,6	+ 2	-16,7	201,2	94	34,4	366,8	186	85,6
-459,7	-273,2	-169,6	39,2	4	-15,6	204,8	96	35,6	370,4	188	86,7
-454	-270	-167,8	42,8	6	-14,4	208,4	98	36,7	374	190	87,8
-436	-260	-162,2	46,4	8	-13,3	212	100	37,8	377,6	192	88,9
-418	-250	-156,7	50,0	10	-12,2	215,6	102	38,9	381,2	194	90
-400	-240	-151,1	53,2	12	-11,1	219,2	104	40	384,8	196	91,1
-382	-230	-145,6	57,2	14	- 10	222,8	106	41,1	388,4	198	92,2
-364	-220	- 140	60,8	16	-8,9	226,4	108	42,2	392	200	93,3
-346	-210	-134,4	64,4	18	-7,8	230	110	43,3	395,6	202	94,4
-328	-200	-128,9	68	20	-6,7	233,6	112	44,4	399,2	204	95,6
-310	-190	-123,3	71,6	22	-5,6	237,2	114	45,6	402,8	206	96,7
-292	-180	-117,8	75,2	24	-4,4	240,8	116	46,7	406,4	208	97,8
-274	-170	-112,2	78,8	26	-3,3	244,4	118	47,8	410	210	98,9
-256	-160	-106,7	82,4	28	-2,2	248	120	48,9	413,6	212	100
-238	-150	-101,1	86	30	- 1,1	251,6	122	50	417,2	214	101,1
-220	-140	-95,6	89,6	32	0	255,2	124	51,1	420,8	216	102,2
-202	-130	- 90	93,2	34	+ 1,1	258,8	126	52,2	424,4	218	103,3
-184	-120	-84,4	96,8	36	2,2	262,4	128	53,3	428	220	104,4
-166	-110	-78,9	100,4	38	3,3	266	130	54,4	431,6	222	105,6
-148	-100	-73,3	104	40	4,4	269,6	132	55,6	435,2	224	106,7
-130	- 90	-67,8	107,6	42	5,6	273,2	134	56,7	438,8	226	107,8
-112	- 80	-62,2	111,2	44	6,7	276,8	136	57,8	442,4	228	108,9
- 94	- 70	-56,7	114,8	46	7,8	280,4	138	58,9	446	230	110
- 76	- 60	-51,1	118,4	48	8,9	284	140	60	449,6	232	111,1
- 58	- 50	-45,6	122	50	10	286,7	142	61,1	453,2	234	112,2
- 40	- 40	- 40	125,6	52	11,1	291,2	144	62,2	456,8	236	113,3
-36,4	- 38	-38,9	129,2	54	12,2	294,8	146	63,3	460,4	238	114,4
-32,8	- 36	-37,8	132,8	56	13,3	298,4	148	64,4	464	240	115,6

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Conversion Factors

Centigrade to Fahrenheit and vice versa

°F	°C/°F	°C	°F	°C/°F	°C	°F	°C/°F	°C	°F	°C/°F	°C
467,6	242	116,7	1040	560	293,3	1670	910	487,8		2300	1260
471,2	244	117,8	1058	570	288,9	1688	920	493,3		2350	1287,8
474,8	246	118,9	1076	580	304,4	1706	930	498,9		2400	1315,6
478,4	248	120	1094	590	310	1724	940	504,4		2450	1343,3
482	250	121,1	1112	600	315,6	1742	950	510		2500	1371,1
500	260	126,7	1130	610	321,1	1760	960	515,6		2550	1398,2
518	270	132,2	1148	620	326,7	1778	970	521,1		2600	1426,7
536	280	137,8	1166	630	332,2	1796	980	526,7		2650	1454,4
554	290	143,3	1184	640	337,8	1814	990	532,2		2700	1482,2
572	300	148,9	1202	650	343,3	1832	1000	537,7		2750	1510
590	310	154,4	1220	660	348,9	1922	1050	565,6		2800	1537,8
608	320	160	1238	670	354,4	2012	1100	593,3		2850	1565,5
626	330	165,6	1256	680	360	2102	1150	621,1		2900	1593,3
644	340	171,1	1274	690	365,6	2192	1200	648,9		2950	1621,1
662	350	176,7	1292	700	371,1	2282	1250	676,7		3000	1648,9
680	360	182,2	1310	710	376,7	2372	1300	704,4		3050	1676,6
698	370	187,8	1328	720	382,2	2462	1350	732,2		3100	1704,4
716	380	193,3	1346	730	387,8	2552	1400	760		3150	1732,2
734	390	198,9	1364	740	383,3	2642	1450	787,8		3200	1760
752	400	204,4	1382	750	398,9	2732	1500	815,6		3250	1787,7
770	410	210	1400	760	404,4	2822	1550	843,3		3300	1815,5
788	420	215,6	1418	770	410	2912	1600	871,1		3350	1843,3
806	430	221,1	1436	780	415,6	3002	1650	898,9		3400	1871,1
824	440	226,7	1454	790	421,1	3092	1700	926,7		3450	1898,8
842	450	232,2	1472	800	426,8	3182	1750	954,4		3500	1926,6
860	460	237,8	1490	810	432,2	32722	1800	982,2		3550	1954,4
878	470	243,3	1508	820	437,8	3362	1850	1010		3600	1982,2
896	480	248,9	1526	830	443,3	3452	1900	1037,8		3650	2010
914	490	254,4	1544	840	448,9	3542	1950	1065,6		3700	2037,7
932	500	260	1562	850	454,4	3632	2000	1093,3		3750	2065,5
950	510	265,6	1580	860	460	3722	2050	1121,1		3800	2093,5
968	520	271,1	1598	870	465,6	3812	2100	1148,9		3850	2121
986	530	276,7	1616	880	471,7	3902	2150	1176,7		3900	2148,8
1004	540	282,2	1634	890	476,7	3992	2200	1204,4		3950	2176,6
1022	550	287,8	1652	900	482,2	4082	2250	1232,2		4000	2204,4

Conversion formulas:

1) °F = 9/5 x °C+32 **2) °C = 5/9 x (°F- 32)**

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Conversion Factors

Kg to J (joule)

Kg	0,0	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9
	J (joule)									
0	-	0,98	1,96	2,94	3,92	4,90	5,88	6,86	7,84	8,82
1	9,81	10,79	11,77	12,75	13,73	14,71	15,69	16,67	17,65	18,63
2	19,61	20,59	21,57	22,56	23,54	24,52	25,50	26,48	27,46	28,44
3	29,42	30,40	31,38	32,36	33,34	34,32	35,30	36,28	37,27	38,25
4	39,23	40,21	41,19	42,17	43,15	44,13	45,11	46,09	47,07	48,05
5	49,03	50,01	50,99	51,97	52,96	53,94	54,92	55,90	56,88	57,86
6	58,84	59,82	60,80	61,78	62,76	63,74	64,72	65,70	66,68	67,67
7	68,65	69,63	70,61	71,59	72,57	73,55	74,53	75,51	76,49	77,47
8	78,45	79,43	80,41	81,39	82,38	83,36	84,34	85,32	86,30	87,28
9	88,26	89,24	90,22	91,20	92,18	93,16	94,14	95,12	96,10	97,09
10	98,07	99,05	100,03	101,01	101,99	102,97	103,95	104,93	105,91	106,89
11	107,87	108,85	109,83	110,81	111,80	112,78	113,76	114,74	115,72	116,70
12	117,68	118,66	119,64	120,62	121,60	122,58	123,56	124,54	125,52	126,51
13	127,49	128,47	129,45	130,43	131,41	132,39	133,37	134,35	135,33	136,31
14	137,29	138,27	139,25	140,23	141,22	142,20	143,18	144,16	145,14	146,12
15	147,10	148,08	149,06	150,04	151,02	152,00	152,98	153,96	154,94	155,92
16	156,91	157,89	158,87	159,85	160,83	161,81	162,79	163,77	164,75	165,73
17	166,71	167,69	168,67	169,65	170,63	171,62	172,60	173,58	174,56	175,54
18	176,52	177,50	178,48	179,46	180,44	181,42	182,40	183,38	184,36	185,34
19	186,33	187,31	188,29	189,27	190,25	191,23	192,21	193,19	194,17	195,15
20	196,13	197,11	198,09	199,07	200,06	201,04	202,02	203,00	203,98	204,96
21	205,94	206,92	207,90	208,88	209,86	210,84	211,82	212,80	213,78	214,77
22	215,75	216,73	217,71	218,69	219,67	220,65	221,63	222,61	223,59	224,57
23	225,55	226,53	227,51	228,49	229,47	230,46	231,44	232,42	233,40	234,38
24	235,36	236,34	237,32	238,30	239,28	240,26	241,24	242,22	243,20	244,18
25	245,17	246,15	247,13	248,11	249,09	250,07	251,05	252,03	253,01	253,99
26	254,97	255,95	256,93	257,91	258,89	259,87	260,86	261,84	262,82	263,80
27	264,78	265,76	266,74	267,72	268,70	269,68	270,66	271,64	272,62	273,60
28	274,58	275,57	276,55	277,53	278,51	279,49	280,47	281,45	282,43	283,41
29	284,39	285,37	286,35	287,33	288,31	289,29	290,28	291,26	292,24	293,22
30	294,20	295,18	296,16	297,14	298,12	299,10	300,08	301,06	302,05	303,03

1 Kg = 9,80665 J

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Conversion Factors

Kg/mm² to N/mm² and MPa

Kg/mm²	0	1	2	3	4	5	6	7	8	9
	N/mm²									
0	-	9,8	19,6	29,4	39,2	49,0	58,8	68,6	78,5	88,3
10	98,1	107,9	117,7	127,5	137,3	147,1	156,9	166,7	176,5	186,3
20	196,1	205,9	215,7	225,6	235,4	245,2	255,0	264,8	274,6	284,4
30	294,2	304,0	313,8	323,6	333,4	343,2	353,0	362,8	372,7	382,5
40	392,3	402,1	411,9	421,7	431,5	441,3	451,1	460,9	470,7	480,5
50	490,3	500,1	509,9	519,7	529,6	539,4	549,2	559,0	568,8	578,6
60	588,4	598,2	608,0	617,8	627,6	637,4	647,2	657,0	666,8	676,7
70	686,5	696,3	706,1	715,9	725,7	735,5	745,3	755,1	764,9	774,7
80	784,5	794,3	804,1	813,9	823,8	833,6	843,4	853,2	863,0	872,8
90	882,6	892,4	902,2	912,0	921,8	931,6	941,4	951,2	961,0	970,9
100	980,7	990,5	1000,3	1010,1	1019,9	1029,7	1039,5	1049,3	1059,1	1068,9
110	1078,7	1088,5	1098,3	1108,1	1118,0	1127,8	1137,6	1147,4	1157,2	1167,0
120	1176,8	1186,6	1196,4	1206,2	1216,0	1225,8	1235,6	1245,4	1255,2	1265,1
130	1274,9	1284,7	1294,5	1304,3	1314,1	1323,9	1333,7	1343,5	1353,3	1363,1
140	1372,9	1382,7	1392,5	1402,3	1412,2	1422,0	1431,8	1441,6	1451,4	1461,2
150	1471,0	1480,8	1490,6	1500,4	1510,2	1520,0	1529,8	1539,6	1594,4	1559,2
160	1569,1	1578,9	1588,7	1598,5	1608,3	1618,1	1627,9	1637,7	1647,5	1657,2
170	1667,1	1676,9	1686,7	1696,5	1706,3	1716,2	1726,0	1735,8	1745,6	1755,4
180	1765,2	1775,0	1784,8	1794,6	1804,4	1814,2	1824,0	1833,8	1843,6	1853,4
190	1863,3	1873,1	1882,9	1892,7	1902,5	1912,3	1922,1	1931,9	1941,7	1951,5
200	1961,3	1971,1	1980,9	1990,7	2000,5	2010,4	2020,2	2030,0	2039,8	2049,6
210	2059,4	2069,2	2079,0	2088,8	2098,6	2108,4	2118,2	2128,0	2137,8	2147,6
220	2157,5	2167,3	2177,1	2186,9	2196,7	2206,5	2216,3	2226,1	2235,9	2245,7
230	2255,5	2265,3	2275,1	2284,9	2294,7	2304,6	2314,4	2324,2	2334,0	2343,8
240	2353,6	2363,4	2373,2	2383,0	2392,8	2402,6	2412,4	2422,2	2432,0	2441,8
250	2451,7	2461,5	2471,3	2481,1	2490,9	2500,7	2510,5	2520,3	2530,1	2539,9
260	2549,7	2559,6	2569,3	2579,1	2588,9	2598,7	2608,6	2618,4	2628,2	2638,0
270	2647,8	2657,6	2667,4	2677,2	2687,0	2696,8	2706,6	2716,4	2726,2	2736,0
280	2745,8	2755,7	2765,5	2775,3	2785,1	2794,9	2804,7	2814,5	2824,3	2834,1
290	2843,9	2853,7	2863,5	2873,3	2883,1	2892,9	2902,8	2912,6	2922,4	2932,2
300	2942,0	2951,8	2961,6	2971,4	2981,2	2991,0	3000,8	3010,6	3020,4	3030,2

1 kg/mm² = 9,80665 N/mm²= 9,80665 x 10^6 Pa

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Conversion Factors

Lb/in² or psi to Kg/mm²

lb/in²	0	1000	2000	3000	4000	5000	6000	7000	8000	9000
	Kg/mm²									
0	-	0,703	1,406	2,109	2,812	3,515	4,218	4,921	5,625	6,328
10 000	7,031	7,734	8,437	9,140	9,843	10,546	11,249	11,952	12,655	13,358
20 000	14,061	14,764	15,468	16,17	16,874	17,577	18,280	18,983	19,686	20,389
30 000	21,092	21,795	22,498	23,201	23,904	24,607	25,311	26,014	26,717	27,420
40 000	28,123	28,826	29,529	30,232	30,935	31,638	32,341	33,044	33,747	34,450
50 000	35,154	35,857	36,560	37,263	37,966	38,669	39,372	40,075	40,778	41,481
60 000	42,184	42,887	43,590	44,293	44,996	45,700	46,403	47,106	47,809	48,512
70 000	49,215	49,918	50,621	51,324	52,027	52,730	53,433	54,136	54,839	55,543
80 000	56,246	56,949	57,652	58,355	59,058	59,761	60,464	61,167	61,870	62,573
90 000	63,276	63,979	64,682	65,386	66,089	66,792	67,495	68,198	68,901	69,604
100000	70,307	71,010	71,713	72,416	73,119	73,822	74,525	75,228	75,932	76,635
110000	77,338	78,041	78,744	79,447	80,150	80,853	81,556	82,259	82,962	83,665
120 000	84,368	85,071	85,774	86,478	87,181	87,884	88,587	89,290	89,993	90,696
130 000	91,399	92,102	92,805	93,508	94,211	94,914	95,618	96,321	97,024	97,727
140 000	98,430	99,133	99,836	100,539	101,242	101,945	102,648	103,351	104,054	104,757
150 000	105,461	106,164	106,867	107,570	108,273	108,976	109,679	110,382	111,085	111,788
160 000	112,491	113,194	113,897	114,600	115,303	116,007	116,710	117,413	118,116	118,819
170 000	119,522	120,225	120,928	121,631	122,334	123,037	123,740	124,443	125,146	125,850
180 000	126,553	127,256	127,959	128,662	129,365	130,068	130,771	131,474	132,177	132,880
190 000	133,583	134,286	134,989	135,693	136,396	137,099	137,802	138,505	139,208	139,911
200 000	140,614	141,317	142,020	142,723	143,426	144,129	144,832	145,535	146,239	146,942
210 000	147,645	148,348	149,051	149,754	150,457	151,160	151,863	152,566	153,269	153,972
220 000	154,675	155,378	156,082	156,785	157,488	158,191	158,894	159,597	160,300	161,003
230 000	161,706	162,409-	163,112	163,815	164,518	165,221	165,925	166,628	167,331	168,034
240 000	168,737	169,440	170,143	170,846	171,549	172,252	172,955	173,658	174,361	175,064
250 000	175,768	176,471	177,174	177,877	178,580	179,283	1179,986	180,689	181,392	182,095
260 000	182,798	183,501	184,204	184,907	185,610	186,314	187,017	187,720	188,423	189,126
270 000	189,829	190,532	191,235	191,938	192,641	193,344	194,047	194,750	195,453	196,157
280 000	196,860	197,563	198,266	198,969	199,672	200,375	201,078	201,781	202,484	203,187
290 000	203,890	204,593	205,296	206,000	206,703	207,406	208,109	208,812	209,515	210,218
300000	210,921	211,264	212,327	213,030	213,733	214,436	215,139	215,842	216,546	217,249

Lb/in² = 1 psi = 0,00070307 Kg/mm²

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Conversion Factors

Pounds force per square inch (lbf/in²) to bar

lbf/in² psi	bar	lbf/in² psi	bar	lbf/in² psi	bar	lbf/in² psi	bar	lbf/in² psi	bar
1	0,689	71	4,8953	141	9.72	610	42,06	1110	76,56
2	0,1379	72	4,9642	142	9.79	620	42,75	1120	77,25
3	0,2068	73	5,0332	143	9.86	630	43,44	1130	77,94
4	0,2758	74	5,1021	144	9.93	640	44,13	1140	78,62
5	0,3447	75	5,1711	145	10.00	650	44,82	1150	79,31
6	0,4137	76	5,2400	146	10.07	660	45,50	1160	80,00
7	0,4826	77	5,3090	147	10.14	670	46,20	1170	80,70
8	0,5516	78	5,3779	148	10.20	680	46,88	1180	81,38
9	0,6205	79	5,4469	149	10.27	690	47,57	1190	82,07
10	0,6895	80	5,5158	150	10.34	700	48,26	1200	82,76
11	0,7584	81	5,5848	155	10.69	710	48,95	1210	83,45
12	0,8274	82	5,6537	160	11.03	720	49,64	1220	84,14
13	0,8963	83	5,7227	165	11.38	730	50,33	1230	84,83
14	0,9653	84	5,7916	170	11.72	740	51,02	1240	85,52
15	1,0342	85	5,8605	175	12.07	750	51,71	1250	86,21
16	1,1032	86	5,9295	180	12.41	760	52,40	1260	86,90
17	1,1721	87	5,9984	185	12.76	770	53,09	1270	87,59
18	1,2411	88	6,0674	190	13.10	780	53,78	1280	88,28
19	1,3100	89	6,1363	195	13.44	790	54,47	1290	88,97
20	1,3790	90	6,2053	200	13.79	800	55,16	1300	89,66
21	1,4479	91	6,2742	205	14.13	810	55,85	1310	90,35
22	1,5168	92	6,3422	210	14.48	820	56,54	1320	91,04
23	1,5858	93	6,4121	215	14.82	830	57,23	1330	91,73
24	1,6547	94	6,4811	220	15.17	840	57,92	1340	92,42
25	1,7237	95	6,5500	225	15.51	850	58,60	1350	93,11
26	1,7926	96	6,6190	230	15.86	860	59,30	1360	93,80
27	1,8616	97	6,6879	235	16.20	870	59,98	1370	94,49
28	1,9305	98	6,7569	240	16.55	880	60,67	1380	95,19
29	1,9995	99	6,8258	245	16.89	890	61,36	1390	95,87
30	2,0684	100	6,8948	250	17.24	900	62,05	1400	96,56
31	2,1374	101	6,9637	255	17.58	910	62,74	1410	97,24
32	2,2063	102	7,0327	260	17.93	920	63,43	1420	97,94
33	2,2753	103	7,1016	265	18.27	930	64,12	1430	98,63
34	2,3442	104	7,1706	270	18.62	940	64,81	1440	99,32
35	2,4132	105	7,2395	275	18.96	950	65,50	1450	100,00
36	2,4821	106	7,31	280	19.31	960	66,19	1460	100,7
37	2,5511	107	7,38	285	19.65	970	66,88	1470	101,4
38	2,6200	108	7,45	290	19.99	980	67,57	1480	102,1
39	2,6890	109	7,52	295	20.34	990	68,28	1490	102,8
40	2,7579	110	7,58	300	20.68	1000	68,95	1500	103,4
41	2,8269	111	7,65	310	21.37	1010	69,64	1600	110,4
42	2,8958	112	7,72	320	22.06	1020	70,33	1700	117,2
43	2,9647	113	7,79	330	22.75	1030	71,02	1800	124,1
44	3,0337	114	7,86	340	23.44	1040	71,71	1900	131,0
45	3,1026	115	7,93	350	24.13	1050	72,40	2000	137,9
46	3,1716	116	8,00	360	28.82	1060	73,11	2500	172,4
47	3,2405	117	8,07	370	25.51	1070	73,80	3000	206,9
48	3,3095	118	8,14	380	26.20	1080	74,49	5000	344,8
49	3,3784	119	8,20	390	26.89	1090	75,18		
50	3,4474	120	8,27	400	27.58	1100	75,87		
51	3,5163	121	8,34	410	28.27				
52	3,5853	122	8,41	420	28.96				
53	3,6542	123	8,48	430	29.65				
54	3,7232	124	8,55	440	30.34				
55	3,7921	125	8,62	450	31.03				
56	3,8611	126	8,69	460	31.72				
57	3,9300	127	8,76	470	32.41				
58	3,9990	128	8,83	480	33.09				
59	4,0679	129	8,89	490	33.78				
60	4,1369	130	8,96	500	34.47				
61	4,2058	131	9,03	510	35.16				
62	4,2748	132	9,10	520	35.85				
63	4,3437	133	9,17	530	36.54				
64	4,4126	134	9,24	540	37.23				
65	4,4816	135	9,31	550	37.92				
66	4,5505	136	9,38	560	38.61				
67	4,6195	137	9,45	570	39.30				
68	4,6884	138	9,51	580	69.99				
69	4,7574	139	9,58	590	40.68				
70	4,8263	140	9,65	600	41.37				

1 psi. (lbf/in²) = 0.06895 bar 1 bar = 14.504 psi (lbf/in²)

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Conversion Factors

Pounds force per square inch (lbf/in^2) to MPa (N/mm^2)

lbf/in^2 psi	MPa N/mm^2	lbf/in^2 psi	MPa N/mm^2
1000	6,9	56000	386,1
2000	13,8	57000	393,0
3000	20,7	58000	399,9
4000	27,6	59000	406,8
5000	34,5	60000	413,7
6000	41,4	61000	420,6
7000	48,3	62000	427,5
8000	55,2	63000	434,4
9000	62,1	64000	441,3
10000	68,9	65000	448,2
11000	75,8	66000	455,1
12000	82,7	67000	461,9
13000	89,6	68000	468,8
14000	96,5	69000	475,7
15000	103,4	70000	482,6
16000	110,3	71000	489,5
17000	117,2	72000	496,4
18000	124,1	73000	503,3
19000	131,0	74000	510,2
20000	137,9	75000	517,1
21000	144,8	76000	524,0
22000	151,7	77000	530,9
23000	158,6	78000	537,8
24000	165,5	79000	544,7
25000	172,4	80000	551,6
26000	179,3	81000	558,5
27000	186,2	82000	565,4
28000	193,1	83000	572,3
29000	199,9	84000	579,2
30000	206,8	85000	586,1
31000	213,7	86000	592,9
32000	220,6	87000	599,8
33000	227,5	88000	606,7
34000	234,4	89000	613,6
35000	241,3	90000	620,5
36000	248,2	91000	627,4
37000	255,1	92000	634,3
38000	262,0	93000	641,2
39000	268,9	94000	648,1
40000	275,8	95000	655,0
41000	282,7	96000	661,9
42000	289,6	97000	668,8
43000	296,5	98000	675,7
44000	303,4	99000	682,6
45000	310,3	100000	689,5
46000	317,2	105000	723,8
47000	324,1	110000	758,4
48000	330,9	115000	792,9
49000	337,8	120000	827,4
50000	344,7	125000	861,8
51000	351,6	130000	896,3
52000	358,5	135000	930,8
53000	365,4	140000	965,3
54000	372,3	145000	999,7
55000	379,2	150000	1034,2

1 psi = 0,006895 MPa 1 MPa= 145.04 psi

Long tons per square inch (UKton/in^2) to MPa (N/mm^2)

UKton/in^2	MPa N/mm^2	UKton/in^2	MPa N/mm^2
1	15,44	71	1096,54
2	30,89	72	1111,99
3	46,33	73	1127,43
4	61,78	74	1142,87
5	77,22	75	1158,32
6	92,67	76	1173,76
7	108,11	77	1189,21
8	123,55	78	1204,65
9	139,00	79	1220,10
10	154,44	80	1235,54
11	169,89	81	1250,98
12	185,33	82	1266,43
13	200,78	83	1281,87
14	216,22	84	1297,32
15	231,66	85	1312,76
16	247,11	86	1328,21
17	262,55	84	1343,65
18	278,00	88	1359,09
19	293,44	89	1374,54
20	308,88	90	1389,98
21	324,33	91	1405,43
22	339,77	92	1420,87
23	355,22	93	1436,32
24	370,66	94	1451,76
25	386,11	95	1467,20
26	401,55	96	1482,65
27	416,99	97	1498,09
28	432,44	98	1513,54
29	447,88	99	1528,98
30	463,33	100	1544,42
31	478,77	105	1621,65
32	494,22	110	1698,87
33	509,66	115	1776,09
34	525,10	120	1853,31
35	540,55	125	1930,53
36	555,99	130	2007,75
37	571,44	135	2084,97
38	586,88	140	2162,19
39	602,33	145	2239,32
40	617,77	150	2316,64
41	633,21	155	2393,86
42	648,66	160	2471,08
43	664,10	165	2548,30
44	679,55	170	2625,52
45	694,99	175	2702,74
46	710,44	180	2779,96
47	725,88	185	2857,19
48	741,32	190	2934,41
49	756,77	195	3011,63
50	772,21	200	3088,85
51	787,66	205	3166,07
52	803,10	210	3243,29
53	818,55	215	3320,51
54	833,99	220	3397,73
55	849,43	225	3474,96
56	864,88	230	3552,18
57	880,32	235	3629,40
58	895,77	240	3706,62
59	911,21	245	3783,84
60	926,65	250	3861,06
61	942,10	255	3938,28
62	957,54	260	4015,50
63	972,99	265	4092,73
64	988,43	270	4169,95
65	1003,88	275	4247,17
66	1019,32	280	4324,39
67	1034,76	285	4401,61
68	1050,21	290	4478,83
69	1065,65	295	4556,05
70	1081,10	300	4633,27

1 UKton/in^2 = 15.4442 MPa 1 MPa = 0.647 UKton/in^2

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Conversion Factors

Square inch (in^2) to cm^2

in^2	cm^2	in^2	cm^2
1	6.4516	51	329.0316
2	12.9032	52	335.4832
3	19.3548	53	341.9348
4	25.8064	54	348.3864
5	32.2580	55	354.8380
6	38.7096	56	361.2896
7	45.1612	57	367.7412
8	51.6128	58	374.1928
9	58.0644	59	380.6444
10	64.5160	60	387.0960
11	70.9676	61	939.5476
12	77.4192	62	399.9992
13	83.8708	63	406.4508
14	90.3224	64	412.9024
15	96.7740	65	419.3540
16	103.2256	66	425.8056
17	109.6772	67	432.2572
18	116.1288	68	438.7088
19	122.5804	69	445.1604
20	129.0320	70	451.6120
21	135.4836	71	458.0636
22	141.9352	72	464.5152
23	148.3868	73	470.9668
24	154.8384	74	477.4184
25	161.2900	75	483.8700
26	167.7416	76	490.3216
27	174.1932	77	496.7732
28	180.6448	78	503.2248
29	187.0964	79	509.6764
30	193.5480	80	516.1280
31	199.9996	81	522.5796
32	206.4512	82	529.0312
33	212.9028	83	535.4828
34	219.3544	84	541.9344
35	225.8060	85	548.3860
36	232.2576	86	554.8376
37	238.7092	87	561.2892
38	245.1608	88	567.7408
39	251.6124	89	574.1924
40	258.0640	90	580.6440
41	264.5156	91	587.0956
42	270.9672	92	593.5472
43	277.4188	93	599.9988
44	283.8704	94	606.4504
45	290.3220	95	612.9020
46	296.7736	96	619.3536
47	303.2252	97	625.8052
48	309.6768	98	632.2568
49	316.1284	99	638.7084
50	322.5800	100	645.1600

1 in^2 = 6,4516 cm^2 — 1cm^2= 0,155 in^2

Cubic feet (ft^3) to m^3

Ft^3	m^3	ft^3	m^3
1	0.0283	56	1.5857
2	0.0566	57	1.6164
3	0.0850	58	1.6424
4	0.1133	59	1.6707
5	0.1416	60	1.6990
6	0.1699	61	1.7273
7	0.1982	62	1.7556
8	0.2265	63	1.7840
9	0.2549	64	1.8123
10	0.2832	65	1.8406
11	0.3115	66	1.8689
12	0.3398	67	1.8972
13	0.3681	68	1.9255
14	0.3964	69	1.9539
15	0.4248	70	1.9822
16	0.4531	71	2.0105
17	0.4814	72	2.0388
18	0.5097	73	2.0671
19	0.5380	74	2.0954
20	0.5663	75	2.1238
21	0.5947	76	2.1521
22	0.6230	77	2.1804
23	0.6513	78	2.2087
24	0.6796	79	2.2370
25	0.7079	80	2.2653
26	0.7362	81	2.2937
27	0.7646	82	2.3220
28	0.7929	83	2.3503
29	0.8212	84	2.3786
30	0.8495	85	2.4069
31	0.8778	86	2.4352
32	0.9061	87	2.4636
33	0.9345	88	2.4919
34	0.9628	89	2.5202
35	0.9911	90	2.5485
36	1.0194	91	2.5768
37	1.0477	92	2.6051
38	1.0760	93	2.6335
39	1.1043	94	2.6618
40	1.1327	95	2.6901
41	1.1610	96	2.7184
42	1.1893	97	2.7467
43	1.2176	98	2.7751
44	1.2459	99	2.8034
45	1.2743	100	2.8317
46	1.3026	110	3.1149
47	1.3309	120	3.3980
48	1.3592	130	3.6812
49	1.3875	140	3.9644
50	1.4158	150	4.2475
51	1.4420	160	4.5307
52	1.4725	170	4.8139
53	1.5008	180	5.0970
54	1.5291	190	5.3802
55	1.5474	200	5.6634

1 ft^3= 0,02832 m^3 — 1m^3= 35,33 ft^3

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Conversion Factors

Feet and inches to meters

inches

	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"
0'	0	0.025	0.051	0.076	0.102	0.127	0.152	0.178	0.203	0.229	0.254	0.279
1'	0.305	0.330	0.335	0.381	0.406	0.432	0.457	0.483	0.508	0.533	0.559	0.584
2'	0.610	0.635	0.660	0.686	0.711	0.737	0.762	0.787	0.813	0.838	0.864	0.889
3'	0.914	0.940	0.965	0.991	1.016	1.041	1.067	1.092	1.118	1.143	1.168	1.194
4'	1.219	1.245	1.270	1.295	1.321	1.346	1.372	1.397	1.422	1.448	1.473	1.499
5'	1.524	1.549	1.575	1.600	1.626	1.651	1.676	1.702	1.727	1.753	1.778	1.803
6'	1.829	1.854	1.880	1.905	1.930	1.956	1.981	2.007	2.032	2.057	2.083	2.108
7'	2.134	2.159	2.184	2.210	2.235	2.261	2.286	2.311	2.327	2.362	2.388	2.413
8'	2.438	2.464	2.489	2.515	2.550	2.565	2.591	2.616	2.642	2.667	2.692	2.718
9'	2.743	2.769	2.794	2.819	2.845	2.870	2.896	2.921	2.946	2.972	2.997	3.023
10'	3.048	3.073	3.099	3.124	3.150	3.175	3.200	3.226	3.251	3.277	3.302	3.327
11'	3.353	3.378	3.404	3.429	3.454	3.480	3.505	3.531	3.555	3.581	3.607	3.632
12'	3.658	3.683	3.708	3.734	3.759	3.785	3.810	3.835	3.861	3.886	3.912	3.937
13'	3.962	3.988	4.013	4.039	4.064	4.089	4.115	4.140	4.166	4.191	4.216	4.242
14'	4.267	4.293	4.318	4.343	4.369	4.394	4.420	4.445	4.470	4.496	4.521	4.547
15'	4.572	4.597	4.623	4.648	4.674	4.699	4.724	4.750	4.775	4.801	4.826	4.851
16'	4.877	4.892	4.928	4.953	4.978	5.004	5.029	5.055	5.080	5.105	5.131	5.156
17'	5.182	5.207	5.232	5.258	5.283	5.309	5.334	5.359	5.385	5.410	5.436	5.461
18'	5.486	5.512	5.537	5.563	5.588	5.613	5.639	5.664	5.690	5.715	5.740	5.766
19'	5.791	5.817	5.842	5.867	5.893	5.918	5.944	5.969	5.994	6.020	6.045	6.071
20'	6.096	6.121	6.147	6.172	6.198	6.223	6.248	6.274	6.299	6.325	6.350	6.375
21'	6.401	6.426	6.452	6.477	6.502	6.528	6.533	6.579	6.604	6.629	6.655	6.680
22'	6.706	6.731	6.756	6.782	6.807	6.833	6.858	6.883	6.909	6.934	6.960	6.985
23'	7.010	7.036	7.061	7.087	7.112	7.137	7.163	7.188	7.214	7.239	7.264	7.290
24'	7.315	7.341	7.366	7.391	7.417	7.442	7.468	7.493	7.518	7.544	7.569	7.595
25'	7.620	7.645	7.671	7.696	7.722	7.747	7.772	7.798	7.823	7.849	7.874	7.899
26'	7.925	7.950	7.976	8.001	8.026	8.052	8.077	8.103	8.128	8.153	8.179	8.204
27'	8.230	8.255	8.280	8.306	8.331	8.357	8.382	8.407	8.433	8.553	8.484	8.509
28'	8.534	8.560	8.585	8.611	8.636	8.661	8.687	8.712	8.738	8.763	8.788	8.814
29'	8.839	8.865	8.890	8.915	8.941	8.966	8.992	9.017	9.042	9.068	9.093	9.119
30'	9.144	9.169	9.195	9.220	9.246	9.271	9.296	9.322	9.347	9.373	9.398	9.423
31'	9.449	9.474	9.500	9.525	9.550	9.576	9.601	9.627	9.652	9.677	9.703	9.728
32'	9.754	9.779	9.804	9.830	9.855	9.881	9.906	9.831	9.957	9.982	10.008	10.033
33'	10.058	10.084	10.109	10.135	10.160	10.185	10.211	10.236	10.262	10.287	10.312	10.338
34'	10.363	10.389	10.414	10.439	10.465	10.490	10.516	10.541	10.566	10.592	10.617	10.643
35'	10.668	10.693	10.719	10.744	10.770	10.795	10.820	10.846	10.871	10.897	10.922	10.947
36'	10.973	10.998	11.024	11.049	11.074	11.100	11.125	11.151	11.176	11.201	11.227	11.252
37'	11.278	11.303	11.328	11.354	11.379	11.405	11.430	11.455	11.481	11.506	11.532	11.557
38'	11.582	11.608	11.633	11.659	11.684	11.709	11.735	11.760	11.786	11.811	11.836	11.862
39'	11.887	11.913	11.938	11.963	11.989	12.014	12.040	12.065	12.090	12.116	12.141	12.167
40'	12.192	12.217	12.343	12.268	12.294	12.319	12.344	12.370	12.395	12.421	12.446	12.471
41'	12.497	12.522	12.548	12.573	12.598	12.624	12.649	12.675	12.700	12.725	12.751	12.776
42'	12.802	12.827	12.852	12.878	12.903	12.929	12.954	12.979	13.005	13.030	13.056	13.081
43'	13.106	13.132	13.157	13.183	13.208	13.233	13.259	13.284	13.310	13.335	13.360	13.386
44'	13.411	13.437	13.462	13.487	13.513	13.538	13.564	13.589	13.614	13.640	13.665	13.691

Meters

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Conversion Factors

SI to US or UK

Units of Measure	SI units		US or UK units		Conversion	
	name	symbol	name	symbol	SI to US or UK	US or UK to SI
Pressure	megapascal or newton per square millimeter	MPa or N/mm^2	pound force per square inch or psi	lbf/in^2 or psi	1 MPa or 1 N/mm^2 = 145 lbf/in^2 or psi	1 lbf/in^2 or 1 psi = 0.0069 MPa or N/mm^2
	bar (1) or decanewton per square centimeter	b or da N/cm^2	pound force per square inch or psi	lbf/in^2 or psi	1 b or 1 da N/cm^2 = 14.5 lbf/in^2 or psi	1 lbf/in^2 or psi = 0.069 b or da N/cm^2
	decanewton per square millimeter	da N/mm^2	pound force per square inch or psi	lbf/in^2 or psi	1 b or 1 da N/mm = 1450 lbf/in^2 or psi	1 lbf/in^2 or psi = 0.069 b or da N/cm^2
	megapascal	Mpa	short ton per square inch	sh ton/in^2	1 MPa = 0.07250 sh ton/in^2	1 sh ton/in^2 = 132.79 MPa
	megapascal	Mpa	long ton per square inch	UK ton/in^2	1 MPa = 0.0647 UK ton/in^2	1 UK ton/in^2 = 15.44 MPa
	Kg/cm^2 ATM				**Units of measure still used in some countries**	
	kilogram per square centimeter	kg/cm^2	pound force per square inch or psi	lbf/in^2 or psi	1 kg/cm^2 = 14.22 lbf/in^2 or psi	lbf/in^2 or psi = 0.0703 kg/cm^2
	atmosphere	atm	pound force per square inch or psi	lbf/in^2 or psi	1 atm = 14.69 lbf/in^2 or psi	lbf/in^2 or psi = 0.068 atm
Moment of a couple	newton meter	N.m	pound force-foot	lbf ft	1 N.m = 0.73756 lbf ft	1 lbf ft = 1.3558 N.m
	decanewton meter	da N.m	pound force-foot	lbf ft	1 da N.m = 7.3756 lbf ft	1 lbf ft = 0.1356 da N.m

Note: (1) 1 bar= 10^5 pascal (1b = 10^5 Pa)
1 kgf= 0.9806 da N

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Conversion Factors

SI to US or UK

Units of measure	SI units		US or UK units		conversion	
	name	symbol	name	symbol	SI to US or UK	US or UK to SI
Length	millimeter	mm	inch	in	1 mm = 0,03937 in	1 in = 25,4 mm
	meter	m	foot	ft	1 m = 3,281 ft	1 ft = 0,3048 m
	meter	m	yards	yd	1 m = 1,0936 yd	1 yd = 0,9144 m
	kilometer	km	mile	ml	1 km = 0,6214 ml	1 ml = 1,609 km
	kilometer	km	nautical mile	ml	1 km = 0,5396 ml	1 ml = 1,853 km
Area	square millimeter	mm^2	square inch	in^2	1 mm^2 = 0,00155 in^2	1 in^2 = 645,2 mm^2
	square meter	m^2	square foot	ft^2	1m^2 = 10,7643 ft^2	1ft^2 = 0,0929 m^2
	square meter	m^2	square yard	yd^2	1M2 = 1,1959 yd^2	1 yd^2 = 0,8361 m^2
	square kilometer	km^2	square mile	ml^2	1 km^2 = 0,3861 ml^2	1 ml^2 = 2,59 km^2
Volume	cubic centimeter	cm^3	cubic inch	in^3	1 cm- ^{3} = 0,061 in^3	1 in^3 =16,39 cm^3
	cubic decim. – liter	dm^3 - l	cubic foot	ft^3	1 dm^3 = 1 l = 0,0353 ft^3	1 ft^3 = 28,32 l or dm^3
	cubic meter	m^3	cubic yard	yd^3	1 m^3 = 1,307 yd^3	1 yd^3 = 0,765 m^3
	liter	l	US gallon	US gal	1 l = 0,2642 US gal	1 US gal = 3,785 l
	liter	l	UK gallon	UK gal	1 l = 0,2200 UK gal	1 UK gal = 4,546 l
Mass	gram	g	ounce	oz	1 g = 0,0353 oz	1 oz = 28,35 g
	kilogram	kg	pound	lb	1 kg = 2,204 lb	1 lb = 0,4536 kg
	ton	t	short ton	sh ton	1 t = 1,1023 sh ton	1 sh to = 0,9072 t
	ton	t	long ton	UK ton	1 t = 0,9842 UK ton	1 UK ton = 1,0160 t

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Conversion Factors

Inches to millimeters

Inches	0	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16
0	0,0	1,6	3,2	4,8	6,4	7,9	9,5	11,1	12,7	14,3	15,9	17,5	19,1	20,6	22,2	23,8
1	25,4	27,0	28,6	30,2	31,8	33,3	34,9	36,5	38,1	39,7	41,3	42,9	44,5	46,0	47,6	49,2
2	50,8	52,4	54,0	55,6	57,2	58,7	60,3	61,9	63,5	65,1	66,7	68,3	69,9	71,4	73,0	74,6
3	76,2	77,8	79,4	81,0	82,6	84,1	85,7	87,3	88,9	90,5	92,1	93,7	95,3	96,8	98,4	100,0
4	101,6	103,2	104,8	106,4	108,0	109,5	111,1	112,7	114,3	115,9	117,5	119,1	120,7	122,2	123,8	125,4
5	127,0	128,6	130,2	131,8	133,4	134,9	136,5	138,1	139,7	141,3	142,9	144,5	146,1	147,6	149,2	150,8
6	152,4	154,0	155,6	157,2	158,8	160,3	161,9	163,5	165,1	166,7	168,3	169,9	171,5	173,0	174,6	176,2
7	177,8	179,4	181,0	182,6	184,2	185,7	187,3	188,9	190,5	192,1	193,7	195,3	196,9	198,4	200,0	201,6
8	203,2	204,8	206,4	208,8	209,6	211,1	212,7	214,3	215,9	217,5	219,1	220,7	222,3	223,8	225,4	227,0
9	228,6	230,2	231,8	233,4	235,0	236,5	238,1	239,7	241,3	242,9	244,5	246,1	247,7	249,2	250,8	252,4
10	254,0	255,6	257,2	258,8	260,4	261,9	263,5	265,1	266,7	268,3	269,9	271,5	273,1	274,6	276,2	277,8
11	279,4	281,0	282,6	284,2	285,8	287,3	288,9	290,5	292,1	293,7	295,3	296,9	298,5	300,0	301,6	303,2
12	304,8	306,4	308,0	309,6	311,2	312,7	314,3	315,9	317,5	319,1	320,7	322,3	323,9	325,4	327,0	328,6
13	330,2	331,8	333,4	335,0	336,6	338,1	339,7	341,3	342,9	344,5	346,1	347,7	349,3	350,8	352,4	354,0
14	355,6	357,2	358,8	360,4	362,0	363,5	365,1	366,7	368,3	369,9	371,5	373,1	374,7	376,2	377,8	379,4
15	381,0	382,6	384,2	385,8	387,4	388,9	390,5	392,1	393,7	395,3	396,9	398,5	400,1	401,6	403,2	404,8
16	406,4	408,0	409,6	411,2	412,8	414,3	415,9	417,5	419,1	420,7	422,3	423,9	425,5	427,0	428,6	430,2
17	431,8	433,4	435,0	436,6	438,8	439,7	441,3	442,9	444,5	446,1	447,7	449,3	450,9	452,4	454,0	455,6
18	457,2	458,8	460,4	462,0	463,6	465,1	466,7	468,3	469,9	471,5	473,1	474,7	476,3	477,8	479,4	481,0
19	482,6	484,2	485,8	487,4	489,0	490,5	492,1	493,7	495,3	496,9	498,5	500,1	501,7	503,2	504,8	506,4
20	508,0	509,6	511,2	512,8	514,4	515,9	517,5	519,1	520,7	522,3	523,9	525,5	527,1	528,6	530,2	531,8
21	533,4	535,0	536,6	538,2	539,8	541,3	542,9	544,5	546,1	547,7	549,3	550,9	552,5	554,0	555,6	557,2
22	558,8	560,4	562,0	563,6	565,2	566,7	568,3	569,9	571,5	573,1	574,7	576,3	577,9	579,4	581,0	582,6
23	584,2	585,8	587,4	589,0	590,6	592,1	593,7	595,3	596,9	598,5	600,1	601,7	603,3	604,8	606,4	608,0
24	609,6	611,2	612,8	614,4	616,0	617,5	619,1	620,7	622,3	623,9	625,5	627,1	628,7	630,2	631,8	633,4
25	635,0	636,6	638,2	639,8	641,4	642,9	644,5	646,1	647,7	649,3	650,9	652,5	654,1	655,6	657,2	658,8
26	660,4	662,0	663,6	665,2	666,8	668,3	669,9	671,5	673,1	674,7	676,3	677,9	679,5	681,0	682,6	684,2
27	685,8	687,4	689,0	690,6	692,2	693,7	695,3	696,9	698,5	700,1	701,7	703,3	704,9	706,4	708,0	709,6
28	711,2	712,8	714,4	716,0	717,6	719,1	720,7	722,3	723,9	725,5	727,1	728,7	730,3	731,8	733,4	735,0
29	736,6	738,2	739,8	741,4	743,0	744,5	746,1	747,7	749,3	750,9	752,5	754,1	755,7	757,2	758,8	760,4
30	762,0	763,6	765,2	766,8	768,4	769,9	771,5	773,1	774,7	776,3	777,9	779,5	781,1	782,6	784,2	785,8
31	787,4	789,0	790,6	792,2	793,8	795,3	796,9	798,5	800,1	801,7	803,3	804,9	806,5	808,0	809,6	811,2
32	812,8	814,4	816,0	817,6	819,2	820,7	822,3	823,9	825,5	827,1	828,7	830,3	831,9	833,4	835,0	836,6
33	838,2	839,8	841,4	843,0	844,6	846,1	847,7	849,3	850,9	852,5	854,1	855,7	857,3	858,8	860,4	862,0
34	863,6	865,2	866,8	868,4	870,0	871,5	873,1	874,7	876,3	877,9	879,5	881,1	882,2	884,2	885,8	887,4
35	889,0	890,6	892,2	893,8	895,4	896,9	898,5	900,1	901,7	903,3	904,9	906,5	908,1	909,6	911,2	912,8
36	914,4	916,0	917,6	919,2	920,8	922,3	923,9	925,5	927,1	928,7	930,3	931,9	933,5	935,0	936,6	938,2
37	939,8	941,4	943,0	944,6	946,2	947,7	949,3	950,9	952,5	954,1	955,7	957,3	958,9	960,4	962,0	963,6
38	965,2	966,8	968,4	970,0	971,6	973,1	974,7	976,3	977,9	979,5	981,1	982,7	984,3	985,8	987,4	989,0
39	990,6	992,2	993,8	995,4	997,0	998,5	1000,1	1001,7	1003,3	1004,9	1006,5	1008,1	1009,7	1011,2	1012,8	1014,4
40	1016,0	1017,6	1019,2	1020,8	1022,4	1023,9	1025,5	1027,1	1028,7	1030,3	1031,9	1033,5	1035,1	1036,6	1038,2	1039,8
41	1041,4	1043,0	1044,6	1046,2	1047,8	1049,3	1050,9	1052,5	1054,1	1055,7	1055,7	1058,9	1060,5	1062,0	1063,6	1065,2
42	1066,8	1068,4	1070,0	1071,6	1073,2	1074,7	1076,9	1077,9	1079,5	1081,1	1082,7	1084,3	1085,9	1087,4	1089,0	1090,6
43	1092,2	1093,8	1095,4	1097,0	1098,6	1100,1	1101,7	1103,3	1104,9	1106,5	1108,1	1109,7	1111,3	1112,8	1114,4	1116,0
44	1117,6	1119,2	1120,8	1122,4	1124,0	1125,5	1127,1	1128,7	1130,3	1131,9	1133,5	1135,1	1136,7	1138,2	1139,8	1141,4
45	1143,0	1144,6	1146,2	1147,8	1149,4	1150,9	1152,4	1154,1	1155,7	1157,3	1158,9	1160,5	1162,1	1163,6	1165,2	1166,8
46	1168,4	1170,0	1171,6	1173,2	1174,8	1176,3	1177,9	1179,5	1181,1	1182,7	1184,3	1185,9	1187,5	1189,0	1190,6	1192,2
47	1193,8	1195,4	1197,0	1198,6	1200,2	1201,7	1203,3	1204,9	1206,6	1208,1	1209,7	1211,3	1212,9	1214,4	1216,0	1217,6
48	1219,2	1220,8	1222,4	1224,0	1225,6	1227,1	1228,7	1230,3	1231,9	1233,5	1235,1	1236,7	1238,3	1239,8	1241,4	1243,0
49	1244,6	1246,2	1247,8	1249,4	1251,0	1252,5	1254,1	1255,7	1257,3	1258,9	1260,5	1262,1	1263,7	1265,2	1266,8	1268,4
50	1270,0	1271,6	1273,2	1274,8	1276,4	1277,9	1279,5	1281,1	1282,7	1284,3	1285,9	1287,5	1289,1	1290,6	1292,2	1293,8

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E-mail: imangasket@nesma.net.sa • Website: www.imangaskets.com

Conversion Factors

Fractions of an inch to inch decimals and millimeter decimals

Fraction of inch	Inch decimal	Millimeters	Fraction of inch	Inch decimal	Millimeters
1/64	0,015625	0,39688	**33/64**	0,515625	13,09690
1/32...	0,03125	0,79375	**17/32...**	0,53125	13,49378
3/64	0,046875	1,19063	**35/64**	0,546875	13,89065
1/16...	0,0625	1,58750	**9/16...**	0,5625	14,28753
5/64	0,078125	1,98438	**37/64**	0,578125	14,68440
3/32...	0,09375	2,38125	**19/32...**	0,59375	15,08128
7/64	0,109375	2,77813	**39/64**	0,609375	15,47816
1/8...	0,125	3,17501	**5/8...**	0,625	15,87503
9/64	0,140625	3,57188	**41/64**	0,640625	16,27191
5/32...	0,15625	3,96876	**21/32...**	0,65625	16,66878
11/64	0,171875	4,36563	**43/64**	0,671875	17,06566
3/16...	0,1875	4,76251	**11/16...**	0,6875	17,46253
13/64	0,203125	5,15939	**45/64**	0,703125	17,85941
7/32...	0,21875	5,55626	**23/32...**	0,71875	18,25629
15/64	0,234375	5,95314	**47/64**	0,734375	18,65316
1/4...	0,25	6,35001	**3/4...**	0,75	19,05004
17/64	0,265625	6,74689	**49/64**	0,765625	19,44691
9/32...	0,28125	7,14376	**25/32...**	0,78125	19,84379
19/64	0,296875	7,54064	**51/64**	0,796875	20,24067
5/16...	0,3125	7,93752	**13/16...**	0,8125	20,63754
21/64	0,328125	8,33439	**53/64**	0,828125	21,03442
11/32...	0,34375	8,73127	**27/32...**	0,84375	21,43129
23/64	0,359375	9,12814	**55/64**	0,859375	21,82187
3/8...	0,375	9,52502	**7/8...**	0,875	22,22504
25/64	0,390625	9,92189	**57/64**	0,890625	22,62192
13/32...	0,40625	10,31877	**29/32**	0,90625	23,01880
27/64	0,421875	10,71565	**59/64**	0,921875	23,41567
7/16...	0,4375	11,11252	15/16...	0,9375	23,81255
29/64	0,453125	11,50940	**61/64**	0,953125	24,20942
15/32...	0,46875	11,90627	**31/32...**	0,96875	24,60630
31/64	0,484375	12,30315	**63/64**	0,984375	25,00318
1/2...	0,5	12,70003	**1...**	1,0	25,40005

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Branch of
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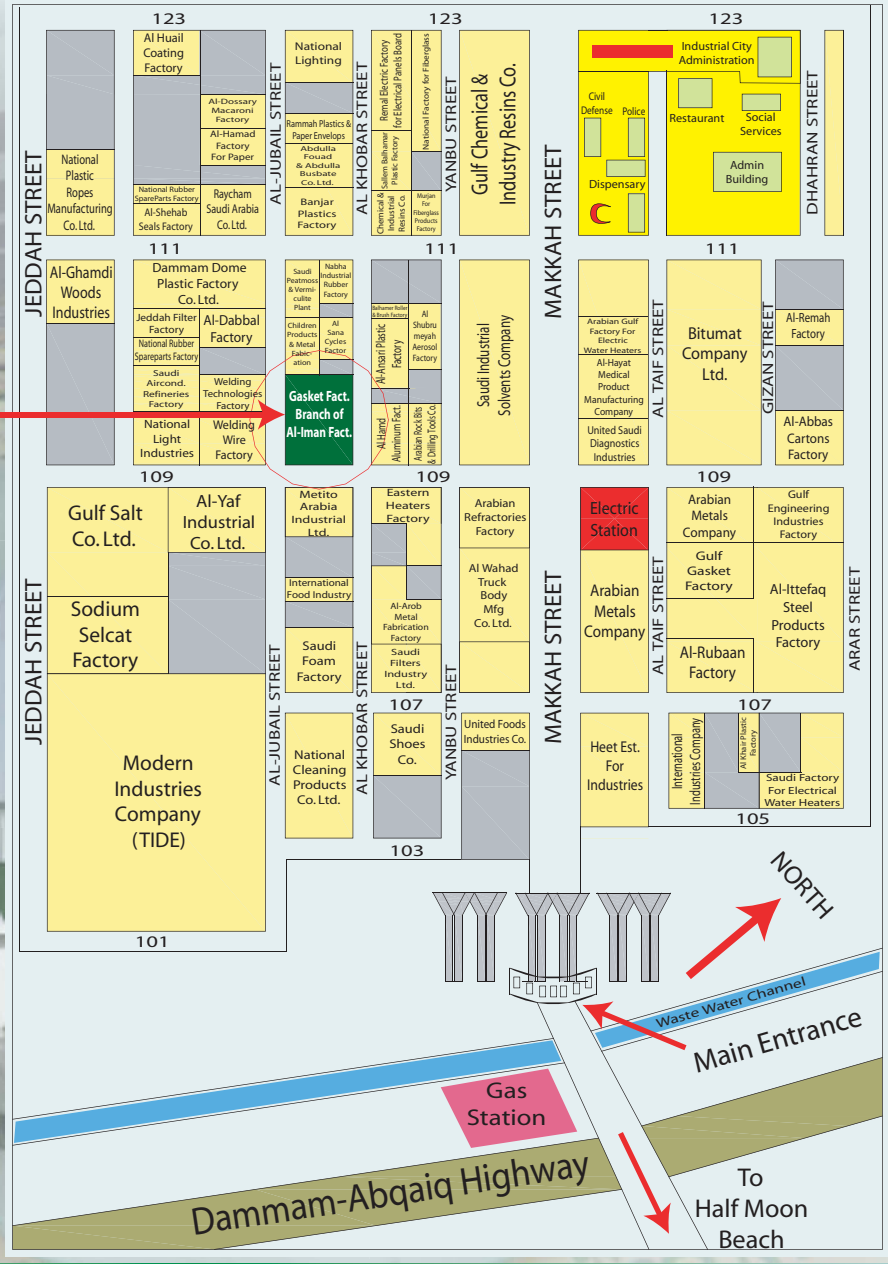
2nd Industrial City Dammam



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