

RUBBER & STEEL RUBBER

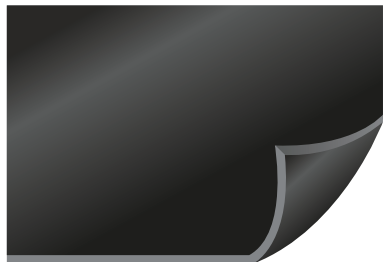
One Source for Sealing Solution Provider to
every of your Specific Application



CARTEC Sealing Technologies Co.,Ltd

RUBBER

C#NR



Natural Rubber (NR)

Workable Temperature (dry heat)

low	high
-40 °C	60 °C
-104°F	140°F

Application Advantage

- ▶ excellent compression set
- ▶ good resilience & abrasion
- ▶ good surface friction properties
- ▶ high tear strength
- ▶ low crack growth
- ▶ good low temperature properties

Primary Uses

O-ring, Rubber seals
Low pressure hydraulic seals.

Application Disadvantage

- ▶ poor weather resistance
- ▶ moderate heat resistance

C#NRB



Nitrile Rubber (NBR, BUNA-N)

Workable Temperature (dry heat)

low	high
-25 °C	100 °C
-77°F	212°F

Application Advantage

- ▶ excellent compression set
- ▶ good tear resistance
- ▶ good abrasion resistance
- ▶ good petroleum-based oils resistance
- ▶ good mineral oil based hydraulic fluids resistance
- ▶ good solvent, water and alcohols resistance

Primary Uses

Gaskets, O-ring, Oil seal lips
Low pressure hydraulic seals.

Application Disadvantage

- ▶ poor weather resistance
- ▶ moderate heat resistance
- ▶ not suited for using in highly polar solvents

C#NRN



NEOPRENE (Chloroprene, CR)

Workable Temperature (dry heat)

low	high
-30 °C	100 °C
-86°F	212°F

Application Advantage

- ▶ high resilience with low compression set
- ▶ moderate resistance to petroleum oils
- ▶ good resistance to ozone, UV, oxygen
- ▶ excellence resistance to Freon and ammonia

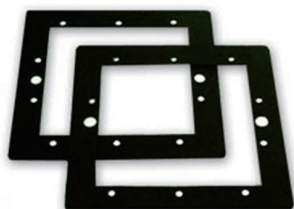
Primary Uses

Gaskets, O-ring, Rubber seals
Hose and wire

Application Disadvantage

- ▶ moderate water resistance
- ▶ not effective in solvents environments

C#NRE



EPDM (Ethylene Propylene)

Workable Temperature (dry heat)

low	high
-40 °C	120 °C
-104°F	248°F

Application Advantage

- ▶ Automotive weather-stripping and seals
- ▶ exceptionally good weather aging and ozone resistance
- ▶ excellent water and chemical resistance
- ▶ good in ketones and alcohols
- ▶ good heat resistance
- ▶ good low temperature flexibility

Primary Uses

O-rings, Flanges seals and gaskets
Water system seal
General industrial use
Hydraulic or rotary seal
Electrical insulation

Application Disadvantage

- ▶ poor petroleum oil and solvent resistance
- ▶ not recommended for food applications
- ▶ not recommended for exposure to aromatic hydrocarbons

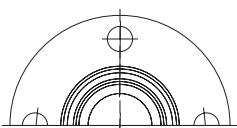
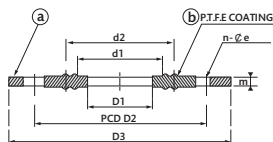
C#NRS



C#NRV



C#NREP



SBR (Styrene butadiene)

Workable Temperature (dry heat)

low	high
-35 °C	90 °C
-95 °F	194 °F

Application Advantage

- ▶ good resistance to water
- ▶ low cost non-oil resistance material

Primary Uses

- ▶ O-ring, Rubber seals

Application Disadvantage

- ▶ poor weather resistance
- ▶ poor petroleum oil and solvent resistance

Viton (Fluoroelastomer, FPM/FKM)

Workable Temperature (dry heat)

low	high
-25 °C	220 °C
-77 °F	428 °F

Application Advantage

- ▶ excellent chemical resistance
- ▶ excellent heat resistance
- ▶ good mechanical properties
- ▶ good compression set resistance
- ▶ resistance to wide range of oils and solvents

Primary Uses

- ▶ o-rings, automotive fuel handling
- ▶ aircraft engine seals
- ▶ high temperature applications requiring good compression set performance

Application Disadvantage

- ▶ poor low temperature flexibility
- ▶ poor resistance to hot water and steam
- ▶ not recommended for exposure to hot water, steam polar solvents

EPDM with P.T.F.E Serration (Ebilon)

EPDM with P.T.F.E serration gasket

Developed in place of P.T.F.E soft-sheet and added serration to the friction surface of product. This can be available for enough pressure.

EPDM PTFE flange gasket has EPDM's advantage and also PTFE's advantage.

Gasket has two sealing rings a primary and secondary

Almost universal chemical resistance and non-contaminating for ultra-pure applications, along with the EPDM memory giving a long sealing life.

Workable Temperature (dry heat)

low	high
-40 °C	150 °C
-104 °F	302 °F

Primary Uses

- ▶ It is used in all chemicals solutions oils, gas, chemical product concerned about fluid pollution, and especially chemical carriers much.
- ▶ Low bolt torque required seal

Application Advantage

- ▶ excellent chemical resistance in most cases

Application Disadvantage

- ▶ not recommended for exposure to molten alkali metals, fluorine gas, hydrogen fluoride, aromatic hydrocarbons.

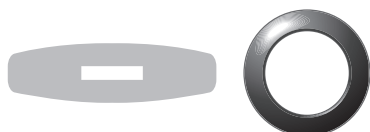
STEEL RUBBER

C#NSRG-01



For various applications

C#NSRG-02



In special dimensions,
For total covering of flange face

C#NSRG-03



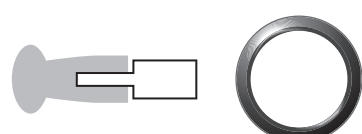
For various applications, top choice
for joints connecting non-metallic
(plastics or GRP) and steel flanges

C#NSRG-04



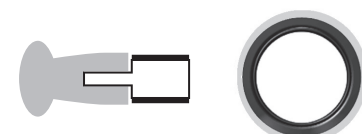
To suit flange joints connecting
pairs of plastic stub ends

C#NSRG-05



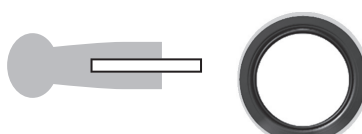
For various applications, top choice
for partially coated flanges
and heavy duty services

C#NSRG-06



For steel flange connections in
First Safe pipelines

C#NSRG-07



Flexible design gasket with
visible stainless steel insert

material	Ro(Ω) 1mm	Ro(Ω) 5mm	(Ω) 1mm	(Ω) 5mm	Test voltage(V)	Ud(KV) 1mm	Ud(KV) 5mm
EPDM	$0,45 \times 10^3$	$0,85 \times 10^3$	$0,5 \times 10^3$	$0,6 \times 10^3$	1	nb	nb
NBR-DUO	$3,30 \times 10^3$	$5,35 \times 10^3$	$1,5 \times 10^3$	$3,2 \times 10^3$	10	nb	nb
CSM	$2,55 \times 10^{12}$	$1,15 \times 10^{12}$	$5,5 \times 10^0$	$8,9 \times 10^0$	100	>15	>15
FPM-S	$2,45 \times 10^{11}$	$2,35 \times 10^{10}$	$6,2 \times 10^0$	$7,4 \times 10^0$	100	>6	>15

nb=without results

Gasket parameters

due to DIN 28 090-1

Profile			G#NSRG 01,03,04,07		G#NSRG-05		G#NSRG 01,03,04,07		
materials			NBR CR, NR, EPDM, IIR	FPM-S, CSM	NBR, CR, NR EPDM, IIR	FPM-S, CSM	"NBR, CR NR, EPDM IIR, CSM FPM-S"		
recommended flange face roughness Ra	μm	max.	160	160	160	160	Ra	$\mu inch$	500
surface pressure limits for 20°C	N/mm ²	$\delta vu/L$ δvo	2 10	2 9	2 450	15 450	m y	psi	1,00 200
surface pressure limits for 50 °C	N/mm ²	$\delta BU/L$ δBO		(2) (5)		(15) (435)			

Materials

NR = Natural rubber

Temp.tmax. -30...+60°C, Shore A hardness 60±5

Temp. Tmax. -22...+140°F

NBR-DUO = Acrylonitrile Butadiene rubber

DIN-DVGW test mark, reg.no.NV-5261AP1125

DRINKING WATER

KTW recommendation 1.3.13 in the areas D₁ and D₂, as well as hygienic test in accordance with DVGW code of practice W 270

FDA, 21 CFR Ch.1(04/2000), § 177.2600

NATURAL GAS

Test approval by DVGW in accordance with DIN EN 3535, Part 3 (prEN 682) reg.no.NG-5113AP1125

Temp. tmax. -25...+70°C, Shore-A-hardness 80±5

Temp. tmax. -13...+158°F

HNBR = Hydrogenated Acrylonitrile Butadiene rubber

Temp. tmax. -25...+150°C, Shore-A-hardness 75±5

Temp. tmax. -13...+302°F

CR = Chloroprene rubber

Temp. tmax. -25...+95°C, Shore-A-hardness 63±5

Temp. tmax. -13...+203°F

CSM = Chlorosulphonated Monomer rubber

Temp. tmax. -20...+120°C, Shore-A-hardness 70±5

Temp. tmax. -4...+248°F

EPDM* = Ethylene Propylene Diene Monomer rubber

KTW recommendation 1.3.13 in the areas D₁ and D₂, FDA approved acc.to 21 CFR Ch.1(04/2000),

§ 177.2600

Temp. tmax. -30...+120°C, Shore-A-hardness 70±5

Temp. tmax. -22...+248°F

FPM-S* = Fluorinated rubber acid proof

Temp. tmax. -20...+200°C, Shore-A-hardness 80±5

Temp. tmax. -4...+392°F

IIR = Isobutylene isoprene rubber (Butyle rubber)

Temp. tmax. -25...+120°C, Shore-A-hardness 55±5

Temp. tmax. -13...+248°F

Steel Insert

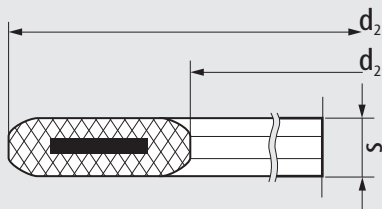
Standard: Carbon Steel

Optional: Stainless Steel

* also available as

"HP" (high purity)

C#NSRS-01



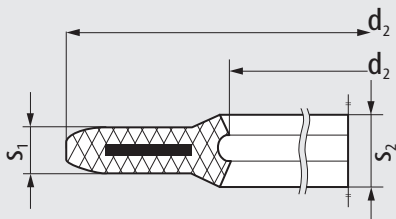
Features

- ▶ High level of security against slippage or blow out provided by the steel reinforcement.
- ▶ Simple, secure and cost-effective installation due to its stability, compared to non-reinforced rubber gaskets.
- ▶ Exceptionally low leakage rate due to the homogeneous rubber casing, making it particularly suitable for pipeline systems carrying media harmful to the environment.
- ▶ Low demand on the flange surface due to the soft, flexible sealing surface, seals can even be created with slightly damaged flanges.

Typical field of application

- ▶ Gas and water supply
- ▶ Chemical industries where aggressive and environmentally harmful media are used
- ▶ Flue gas cleaning systems and power plant cooling circuits
- ▶ Wastewater systems
- ▶ Pipeline construction with vacuum-operated pipelines
- ▶ Pipeline systems with all-rubber flange sealing surfaces
- ▶ With enamel pipelines and apparatus flanges.

C#NSRS-02



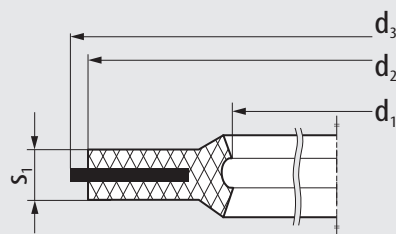
Features

- ▶ Leak-proof even at the lowest tightening torques, making the rubber-steel gasket profile C#NSRS-02 particularly suitable for plastic flange connections where there no high forces can be exerted.
- ▶ Highly leak-proof due to the self-sealing effect of the sealing lips under internal pressure; the internal pressure forces the sealing lips apart and contributes to the creation of the seal
- ▶ There is no pressing or flowing of the flexible sealing lips towards the rubber-steel gaskets when used in solid profile, as occurs with O or V-rings.
- ▶ optimum smoothing of any bumps on the flange by the flexible sealing lips, particularly when a contiguous seal cannot always be guaranteed, as with GRP flanges.

Typical field of application

- ▶ plastic and GRP flange connections
- ▶ Sealing vacuum-operated pipeline systems in chemical industry
- ▶ Gas and water supply
- ▶ For sealing highly-flexible flanges
- ▶ with enamel pipelines and apparatus flanges.

C#NSRS-03



Features

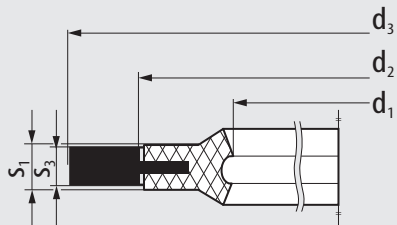
- ▶ Easy to replace the rubber sealing rings, meaning the rubber-steel gasket Profile C#NSRS-03 can be reused again and again.
- ▶ Safe to use and easy to handle the rubber sealing material, even at large nominal sizes.
- ▶ Special sizes can be produced without incurring additional costs, from an internal diameter of approx. 400mm.

Typical field of application

- ▶ Sealing tank flange connections.
- ▶ Sealing special flanges.
- ▶ Sealing cooling and condensate pipelines in power plants.

STEEL RUBBER

C#NSRS-04



Features

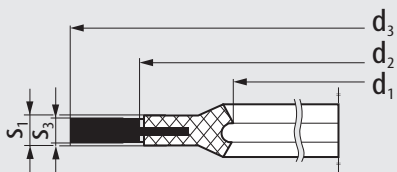
- ▶ Impossible to overload the rubber sealing ring
- ▶ Seal is secure, even with large fluctuations or surges in pressure
- ▶ Impervious to additional pipelines forces
- ▶ Easy and safe installation, reduces the risk of installation errors caused by applying too high or uneven bolt tightening torque (the most common reason for the failure of a rubber-steel gasket) simple replacement of the rubber sealing ring, making it reusable
- ▶ Special sizes can be produced without incurring additional costs, from an internal diameter of approx. 400mm.
- ▶ Can be used for a range of applications due to the very large range of surface pressure limits.

Typical field of application

- ▶ High pressure lines such as gas distribution pipelines, gas pressure control systems
- ▶ Pipeline construction such as in underground pipelines
- ▶ Flue gas cleaning systems and power plant cooling circuits
- ▶ Pipeline and apparatus construction with partly-rubber flange sealing surfaces.

In order to determine the flange recess required for the rubber coating we would be happy to provide our design recommendations.

C#NSRS-04HT



Features

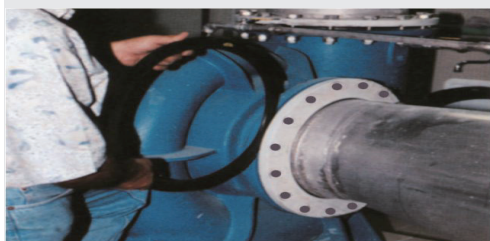
- ▶ Certified and tested under high thermal loads at 650°C, 30 minutes by the DVGW research centre, Karlsruhe for conformity with DVGW-VP 401 (01.10.98) for flange connections in accordance with DIN EN 1092-1.
- ▶ Has all the features of the rubber-steel gasket Profile C#NSRS-04
- ▶ Easy to replace the rubber sealing rings and graphite layers, meaning the rubber-steel gasket Profile C#NSRS-04HT can be reused again and again

Typical field of application

- ▶ Domestic gas supplies with flanged house connection combinations, pressure regulators and gas meters
- ▶ Gas stations
- ▶ Drinking water pipelines with associated fire fighting systems in accordance with DIN 1988-6.

Installation Instruction

- ▶ Flanges must be clean, dry and aligned in parallel before work starts.
- ▶ The gasket must not be damaged.
- ▶ Separating agents or lubricants containing grease should not come into contact with the rubber gasket.
- ▶ Tighten the screws evenly (crosswise) in multiple passes.
- ▶ The pipeline must be prevented from settling by the use of appropriate supporting material, otherwise the rubber gasket will be pinched on one side.
- ▶ Rubber-steel gaskets should not be used more than once.



Metric Unit Conversions

To Convert From:	To SI Units:	Multiply By:
Length		
mil	mm	0.0254
in	mm	25.4
in	cm	2.54
ft	m	0.3048
Area		
in ²	cm ²	6.4516
ft ²	m ²	0.0929
Volume		
US gal	l	3.7854
US gal	m ³	0.0038

To Convert From:	To SI Units:	Multiply By:
Force		
lbf	N	4.4482
kgf	N	9.8066
Weight		
oz	g	28.3495
oz	kg	0.0283
lb	g	453.5924
lb	kg	0.4536
Density		
oz/in ³	g/cm ³	1.73
g/cm ³	kg/m ³	1000
lb/ft ³	kg/m ³	16.0185

To Convert From:	To SI Units:	Multiply By:
Pressure		
psi	Pa	6894.757
psi	kPa	6.8947
psi	bar	0.069
psi	MPa	0.0069
N/m ²	Pa	1.000
Torque		
in lb	Nm	0.113
ft lb	Nm	1.3558
Adhesion		
lb/in	KN/m	0.1751

Temperature Conversion

Conversion Formulas: $C = \frac{5}{9}(F-32)$, $F = \frac{9}{5}(C)+32$

Fahrenheit to Centigrade

-360 to 6		7 to 49		50 to 92		93 to 440		450 to 870		880 to 2000	
F	C	F	C	F	C	F	C	F	C	F	C
-350	-212	7	-13.9	50	10.0	93	33.9	450	232	880	471
-340	-207	8	-13.3	51	10.6	94	34.4	460	238	890	477
-330	-201	9	-12.8	52	11.1	95	35.0	470	243	900	482
-320	-196	10	-12.2	53	11.7	96	35.6	480	249	910	488
-310	-190	11	-11.7	54	12.2	97	36.1	490	254	920	493
-300	-184	12	-11.1	55	12.8	98	36.7	500	260	930	499
-290	-179	13	-10.6	56	13.3	99	37.2	510	266	940	504
-280	-173	14	-10.0	57	13.9	100	37.8	520	271	950	510
-273	-169	15	-9.4	58	14.4	110	43	530	277	960	516
-270	-168	16	-8.9	59	15.0	120	49	540	282	970	521
-260	-162	17	-8.3	60	15.6	130	54	550	288	980	527
-250	-157	18	-7.8	61	16.1	140	60	560	293	990	532
-240	-151	19	-7.2	62	16.7	150	66	570	299	1000	538
-230	-146	20	-6.7	63	17.2	160	71	580	304	1020	549
-220	-140	21	-6.1	64	17.8	170	77	590	310	1040	560
-210	-134	22	-5.6	65	18.3	180	82	600	316	1060	571
-200	-129	23	-5.0	66	18.9	190	88	610	321	1080	582
-190	-123	24	-4.4	67	19.4	200	93	620	327	1100	593
-180	-118	25	-3.9	68	20.0	210	99	630	332	1120	604
-170	-112	26	-3.3	69	20.6	212	100	640	338	1140	616
-160	-107	27	-2.8	70	21.1	220	104	650	343	1160	627
-150	-101	28	-2.2	71	21.7	230	110	660	349	1180	638
-140	-96	29	-1.7	72	22.2	240	116	670	354	1200	649
-130	-90	30	-1.1	73	22.8	250	121	680	360	1220	660
-120	-84	31	-0.6	74	23.3	260	127	690	366	1240	671
-110	-79	32	0.0	75	23.9	270	132	700	371	1260	682
-100	-73	33	0.6	76	24.4	280	138	710	377	1280	693
-90	-68	34	1.1	77	25.0	290	143	720	382	1300	704
-80	-62	35	1.7	78	25.5	300	149	730	388	1350	732
-70	-57	36	2.2	79	26.1	310	154	740	393	1400	760
-60	-51	37	2.8	80	26.7	320	160	750	399	1450	788
-50	-46	38	3.3	81	27.2	330	166	760	404	1500	816
-40	-40	39	3.9	82	27.8	340	171	770	410	1550	843
-30	-34	40	4.4	83	28.3	350	177	780	416	1600	871
-20	-29	41	5.0	84	28.9	360	182	790	421	1650	899
-10	-23	42	5.6	85	29.4	370	188	800	427	1700	927
0	-17.8	43	6.1	86	30.0	380	193	810	432	1750	954
1	-17.2	44	6.7	87	30.6	390	199	820	438	1800	982
2	-16.7	45	7.2	88	31.1	400	204	830	443	1850	1010
3	-16.1	46	7.8	89	31.7	410	210	840	449	1900	1038
4	-15.6	47	8.3	90	32.2	420	215	850	454	1950	1066
5	-15.0	48	8.9	91	32.8	430	221	860	460	2000	1093
6	-14.4	49	9.4	92	33.3	440	227	870	466		

RAISED FACE GASKET FOR ASME B16.5, B16.21, B16.47-B

NOMINAL SIZE Inch	INSIDE DIAMETER ID	OUTSIDE DIAMETER OD				
		Class 150	Class 300	Class 400	Class 600	Class 900
0.50"	21±1.5	48+0-1.5	54+0-1.5	54+0-1.5	54+0-1.5	64+0-1.5
0.75"	27±1.5	57+0-1.5	67+0-1.5	67+0-1.5	67+0-1.5	70+0-1.5
1"	33±1.5	67+0-1.5	73+0-1.5	73+0-1.5	73+0-1.5	79+0-1.5
1.25"	42±1.5	76+0-1.5	83+0-1.5	83+0-1.5	83+0-1.5	89+0-1.5
1.50"	48±1.5	86+0-1.5	95+0-1.5	95+0-1.5	95+0-1.5	98+0-1.5
2"	60±1.5	105+0-1.5	111+0-1.5	111+0-1.5	111+0-1.5	143+0-1.5
2.5"	73±1.5	124+0-1.5	130+0-1.5	130+0-1.5	130+0-1.5	165+0-1.5
3"	89±1.5	137+0-1.5	149+0-1.5	149+0-1.5	149+0-1.5	168+0-1.5
3.5"	102±1.5	162+0-1.5	165+0-1.5	162+0-1.5	162+0-1.5	-
4"	114±1.5	175+0-1.5	181+0-1.5	178+0-1.5	194+0-1.5	206+0-1.5
5"	141±1.5	197+0-1.5	216+0-1.5	213+0-1.5	241+0-1.5	248+0-1.5
6"	168±1.5	222+0-1.5	251+0-1.5	248+0-1.5	267+0-1.5	289+0-1.5
8"	219±1.5	279+0-1.5	308+0-1.5	305+0-1.5	321+0-1.5	359+0-1.5
10"	273±1.5	340+0-1.5	362+0-1.5	359+0-1.5	400+0-1.5	435+0-1.5
12"	324±1.5	410+0-1.5	422+0-1.5	419+0-1.5	457+0-1.5	498+0-1.5
14"	356±3.0	451+0-3.0	486+0-3.0	483+0-3.0	492+0-3.0	521+0-3.0
16"	406±3.0	514+0-3.0	540+0-3.0	537+0-3.0	565+0-3.0	575+0-3.0
18"	457±3.0	549+0-3.0	597+0-3.0	594+0-3.0	613+0-3.0	638+0-3.0
20"	508±3.0	60+0-3.0	654+0-3.0	648+0-3.0	683+0-3.0	699+0-3.0
24"	610±3.0	718+0-3.0	775+0-3.0	768+0-3.0	791+0-3.0	838+0-3.0
26(B)"	660±3.0	725+0-3.0	772+0-3.0	746+0-3.0	765+0-3.0	-
28(B)"	711±3.0	776+0-3.0	826+0-3.0	800+0-3.0	819+0-3.0	-
30(B)"	762±3.0	827+0-3.0	886+0-3.0	857+0-3.0	879+0-3.0	-
32(B)"	813±3.0	881+0-3.0	940+0-3.0	911+0-3.0	933+0-3.0	-
34(B)"	864±3.0	935+0-3.0	994+0-3.0	962+0-3.0	997+0-3.0	-
36(B)"	914±3.0	987+0-3.0	1048+0-3.0	1022+0-3.0	1048+0-3.0	-
38(B)"	965±3.0	1045+0-3.0	1099+0-3.0	-	-	-
40(B)"	1016±3.0	1095+0-3.0	1149+0-3.0	-	-	-
42(B)"	1067±3.0	1146+0-3.0	1200+0-3.0	-	-	-
44(B)"	1118±3.0	1197+0-3.0	1251+0-3.0	-	-	-
46(B)"	1168±3.0	1256+0-3.0	1318+0-3.0	-	-	-
48(B)"	1219±3.0	1307+0-3.0	1368+0-3.0	-	-	-
50(B)"	1270±3.0	1357+0-3.0	1419+0-3.0	-	-	-
52(B)"	1321±3.0	1408+0-3.0	1470+0-3.0	-	-	-
54(B)"	1372±3.0	1464+0-3.0	1530+0-3.0	-	-	-
56(B)"	1422±3.0	1514+0-3.0	1594+0-3.0	-	-	-
58(B)"	1473±3.0	1580+0-3.0	1656+0-3.0	-	-	-
60(B)"	1524±3.0	1630+0-3.0	1705+0-3.0	-	-	-

Unit = mm

RAISED FACE GASKET FOR ASME B16.47-A

NOMINAL SIZE Inch	INSIDE DIAMETER ID	OUTSIDE DIAMETER OD			
		Class 150	Class 300	Class 400	Class 600
22"(A)	559±3.0	660+0-3.0	705+0-3.0	702+0-3.0	733+0-3.0
26"(A)	660±3.0	775+0-3.0	835+0-3.0	832+0-3.0	867+0-3.0
28"(A)	711±3.0	832+0-3.0	899+0-3.0	892+0-3.0	914+0-3.0
30"(A)	762±3.0	883+0-3.0	953+0-3.0	946+0-3.0	972+0-3.0
32"(A)	813±3.0	940+0-3.0	1006+0-3.0	1003+0-3.0	1022+0-3.0
34"(A)	864±3.0	991+0-3.0	1057+0-3.0	1054+0-3.0	1073+0-3.0
36"(A)	914±3.0	1048+0-3.0	1118+0-3.0	1118+0-3.0	1130+0-3.0
38"(A)	965±3.0	1111+0-3.0	1054+0-3.0	1073+0-3.0	1105+0-3.0
40"(A)	1016±3.0	1162+0-3.0	1114+0-3.0	1127+0-3.0	1156+0-3.0
42"(A)	1067±3.0	1219+0-3.0	1165+0-3.0	1178+0-3.0	1219+0-3.0
44"(A)	1118±3.0	1276+0-3.0	1219+0-3.0	1232+0-3.0	1270+0-3.0
46"(A)	1168±3.0	1327+0-3.0	1273+0-3.0	1289+0-3.0	1327+0-3.0
48"(A)	1219±3.0	1384+0-3.0	1324+0-3.0	1346+0-3.0	1391+0-3.0
50"(A)	1270±3.0	1435+0-3.0	1378+0-3.0	1403+0-3.0	1448+0-3.0
52"(A)	1321±3.0	1492+0-3.0	1429+0-3.0	1454+0-3.0	1499+0-3.0
54"(A)	1372±3.0	1549+0-3.0	1492+0-3.0	1518+0-3.0	1556+0-3.0
56"(A)	1422±3.0	1607+0-3.0	1543+0-3.0	1568+0-3.0	1613+0-3.0
58"(A)	1473±3.0	1664+0-3.0	1594+0-3.0	1619+0-3.0	1664+0-3.0
60"(A)	1524±3.0	1715+0-3.0	1645+0-3.0	1683+0-3.0	1721+0-3.0

Unit = mm

FULL FACE GASKET FOR ASME B16.5, 16.21, B16.47-B

Nominal Pipe Size	INSIDE DIAMETER ID	CLASS 150				CLASS 300			
		OD	BCD	Hole No.	H.D	OD	BCD	Hole No.	H.D
0.50"	21±1.5	89+0-1.5	60.3±1.5	4	15.8±0.75	95+0-1.5	66.7±1.5	4	15.7±0.75
0.75"	27±1.5	98+0-1.5	69.9±1.5	4	15.8±0.75	117+0-1.5	82.6±1.5	4	19.1±0.75
1"	33±1.5	108+0-1.5	79.4±1.5	4	15.8±0.75	124+0-1.5	88.9±1.5	4	19.1±0.75
1.25"	42±1.5	117+0-1.5	88.9±1.5	4	15.8±0.75	133+0-1.5	98.4±1.5	4	19.1±0.75
1.50"	48±1.5	127+0-1.5	98.4±1.5	4	15.8±0.75	156+0-1.5	114.3±1.5	4	22.4±0.75
2"	60±1.5	152+0-1.5	120.7±1.5	4	19.0±0.75	165+0-1.5	127.0±1.5	8	19.1±0.75
2.50"	73±1.5	178+0-1.5	139.7±1.5	4	19.0±0.75	191+0-1.5	149.2±1.5	8	22.2±0.75
3"	89±1.5	191+0-1.5	152.4±1.5	4	19.0±1.5	210+0-1.5	168.3±1.5	8	22.2±1.5
3.50"	102±1.5	216+0-1.5	177.8±1.5	8	19.0±1.5	229+0-1.5	184.2±1.5	8	22.2±1.5
4"	114±1.5	229+0-1.5	190.5±1.5	8	19.0±1.5	254+0-1.5	200.0±1.5	8	22.2±1.5
5"	141±1.5	254+0-1.5	215.9±1.5	8	22.2±1.5	279+0-1.5	235.0±1.5	8	22.2±1.5
6"	168±1.5	279+0-1.5	241.3±1.5	8	22.2±1.5	318+0-1.5	269.9±1.5	12	22.2±1.5
8"	219±1.5	343+0-1.5	298.5±1.5	8	22.2±1.5	381+0-1.5	330.2±1.5	12	25.4±1.5
10"	273±1.5	406+0-1.5	362.0±1.5	12	25.4±1.5	444.5+0-1.5	387.3±1.5	16	28.4±1.5
12"	324±1.5	483+0-1.5	431.8±1.5	12	25.4±1.5	520.7+0-1.5	450.9±1.5	16	31.8±1.5
14"	356±3.0	533+0-3.0	476.3±1.5	12	28.5±1.5	584.2+0-3.0	514.4±1.5	20	31.8±1.5
16"	406±3.0	597+0-3.0	539.8±1.5	16	28.5±1.5	647.7+0-3.0	571.5±1.5	20	35.1±1.5
18"	457±3.0	635+0-3.0	577.9±1.5	16	31.8±1.5	711.2+0-3.0	628.7±1.5	24	35.1±1.5
20"	508±3.0	699+0-3.0	635.0±1.5	20	31.8±1.5	774.7+0-3.0	685.8±1.5	24	35.1±1.5
24"	610±3.0	813+0-3.0	749.3±1.5	20	35.0±1.5	914.4+0-3.0	812.8±1.5	24	41.1±1.5
26(B)"	660.4±3.0	785.9+0-3.0	744.5±1.5	36	22.2±1.5	866.6+0-3.0	803.1±1.5	32	35.1±1.5
28(B)"	711.2±3.0	836.7+0-3.0	795.3±1.5	40	22.2±1.5	920.8+0-3.0	857.3±1.5	36	35.1±1.5
30(B)"	762.0±3.0	887.5+0-3.0	846.1±1.5	44	22.2±1.5	990.6+0-3.0	920.8±1.5	36	35.1±1.5
32(B)"	812.8±3.0	941.3+0-3.0	900.2±1.5	48	22.2±1.5	1054.1+0-3.0	977.9±1.5	32	38.1±1.5
34(B)"	863.6±3.0	1004.8+0-3.0	957.3±1.5	40	25.4±1.5	1107.9+0-3.0	1031.7±1.5	36	41.1±1.5
36(B)"	914.4±3.0	1057.1+0-3.0	1009.7±1.5	44	25.4±1.5	1171.4+0-3.0	1089.2±1.5	32	41.1±1.5
38(B)"	965.2±3.0	1124+0-3.0	1069.8±1.5	40	28.4±1.5	1222.2+0-3.0	1140.0±1.5	36	44.5±1.5
40(B)"	1016.0±3.0	1174.8+0-3.0	1120.6±1.5	44	28.4±1.5	1273.0+0-3.0	1190.8±1.5	40	44.5±1.5
42(B)"	1066.8±3.0	1225.6+0-3.0	1171.4±1.5	48	28.4±1.5	1333.5+0-3.0	1244.6±1.5	36	44.5±1.5
44(B)"	1117.6±3.0	1276.4+0-3.0	1222.2±1.5	52	28.4±1.5	1384.3+0-3.0	1295.4±1.5	40	47.8±1.5
46(B)"	1168.4±3.0	1341.4+0-3.0	1284.7±1.5	40	31.8±1.5	1460.5+0-3.0	1365.3±1.5	36	47.8±1.5
48(B)"	1219.2±3.0	1392.2+0-3.0	1335.0±1.5	44	31.8±1.5	1511.3+0-3.0	1416.1±1.5	40	50.8±1.5
50(B)"	1270.0±3.0	1443+0-3.0	1385.8±1.5	48	31.8±1.5	1562.1+0-3.0	1466.9±1.5	44	50.8±1.5
52(B)"	1320.8±3.0	1493.8+0-3.0	1436.6±1.5	52	31.8±1.5	1612.9+0-3.0	1517.7±1.5	48	50.8±1.5
54(B)"	1371.6±3.0	1549.4+0-3.0	1492.3±1.5	56	31.8±1.5	1673.4+0-3.0	1577.8±1.5	48	50.8±1.5
56(B)"	1422.4±3.0	1600.2+0-3.0	1543.1±1.5	60	31.8±1.5	1765.3+0-3.0	1651.0±1.5	36	50.8±1.5
58(B)"	1473.2±3.0	1674.9+0-3.0	1611.4±1.5	48	35.1±1.5	1827.3+0-3.0	1713.0±1.5	40	60.5±1.5
60(B)"	1524.0±3.0	1725.7+0-3.0	1662.2±1.5	52	35.1±1.5	1878.1+0-3.0	1763.8±1.5	40	60.5±1.5

Unit = mm

FULL FACE GASKET FOR ASME B16.47-A

Nominal Pipe Size	INSIDE DIAMETER ID	CLASS 150				CLASS 300			
		OD	BCD	Hole No.	H.D	OD	BCD	Hole No.	H.D
22"(A)	558.8±3.0	749.0+0-3.0	692.2±1.5	20	35.1±1.5	838.0+0-3.0	743.0±1.5	24	41.1±1.5
26"(A)	660.4±3.0	870.0+0-3.0	806.5±1.5	24	35.1±1.5	971.6+0-3.0	876.3±1.5	28	44.5±1.5
28"(A)	711.2±3.0	927.1+0-3.0	863.6±1.5	28	35.1±1.5	1035.1+0-3.0	939.8±1.5	28	44.5±1.5
30"(A)	762.0±3.0	984.3+0-3.0	914.4±1.5	28	35.1±1.5	1092.2+0-3.0	989.7±1.5	28	47.8±1.5
32"(A)	812.8±3.0	1060.5+0-3.0	977.9±1.5	28	41.1±1.5	1149.4+0-3.0	1054.1±1.5	28	50.8±1.5
34"(A)	863.6±3.0	1111.3+0-3.0	1028.7±1.5	32	41.1±1.5	1206.5+0-3.0	1104.9±1.5	28	50.8±1.5
36"(A)	914.4±3.0	1168.4+0-3.0	1085.9±1.5	32	41.1±1.5	1270.0+0-3.0	1168.4±1.5	32	53.8±1.5
38"(A)	965.2±3.0	1238.3+0-3.0	1149.4±1.5	32	41.1±1.5	1168.4+0-3.0	1092.2±1.5	32	41.1±1.5
40"(A)	1016.0±3.0	1289.1+0-3.0	1200.2±1.5	36	41.1±1.5	1238.3+0-3.0	1155.7±1.5	32	44.5±1.5
42"(A)	1066.8±3.0	1346.2+0-3.0	1257.3±1.5	36	41.1±1.5	1289.1+0-3.0	1206.5±1.5	32	44.5±1.5
44"(A)	1117.6±3.0	1403.4+0-3.0	1314.5±1.5	40	41.1±1.5	1352.6+0-3.0	1263.7±1.5	32	47.8±1.5
46"(A)	1168.4±3.0	1454.2+0-3.0	1365.3±1.5	40	41.1±1.5	1416.1+0-3.0	1320.8±1.5	28	50.8±1.5
48"(A)	1219.2±3.0	1511.3+0-3.0	1422.4±1.5	44	41.1±1.5	1466.9+0-3.0	1371.6±1.5	32	50.8±1.5
50"(A)	1270.0±3.0	1568.5+0-3.0	1479.6±1.5	44	47.8±1.5	1530.4+0-3.0	1428.8±1.5	32	53.8±1.5
52"(A)	1320.8±3.0	1625.6+0-3.0	1530.4±1.5	44	47.8±1.5	1581.2+0-3.0	1479.6±1.5	32	53.8±1.5
54"(A)	1371.6±3.0	1682.8+0-3.0	1593.9±1.5	44	47.8±1.5	1657.4+0-3.0	1549.4±1.5	28	60.5±1.5
56"(A)	1422.4±3.0	1746.3+0-3.0	1651.0±1.5	48	47.8±1.5	1708.2+0-3.0	1600.2±1.5	28	60.5±1.5
58"(A)	1473.2±3.0	1803.4+0-3.0	1708.2±1.5	48	47.8±1.5	1759.0+0-3.0	165.01±1.5	32	60.5±1.5
60"(A)	1524.0±3.0	1854.2+0-3.0	1759.0±1.5	52	47.8±1.5	1809.8+0-3.0	1701.8±1.5	32	60.5±1.5

Unit = mm

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