

# Burasil Universal 9544/U

## Standards and approvals

- DVGW
- KTW
- HTB
- BAM (O<sub>2</sub>)
- WRAS
- TA-Luft

## Forms of supply

- Sheets: 1,500 x 1,500/ 1,000 x 1,500/ 3,000 x 1,500 mm
- Thickness: 0.3 /0.5 /1.0 /1.5 /2.0 /3.0 mm
- Gaskets and rings

## Recommended applications

- Process industry
- Oil and gas industry
- Petrochemical industry
- Chemical industry
- Pharmaceutical industry
- Power plant technology
- Pulp and paper industry
- Food and beverage industry
- Metal production and processing
- Centrifugal pumps
- Compressors
- Agitators
- Mixers
- Dryers
- Refiners
- Valves
- Heat exchangers
- Hatches
- Reactor vessels
- Process vessels
- Flange connections

## Physical properties (Gasket thickness 2.00 mm)

Property	Standard	Unity	Value*
Density	DIN 28 090-2	[g/cm <sup>3</sup> ]	1.8
Tensile strength	DIN 52 910		
longitudinal		[N/mm <sup>2</sup> ]	27
transverse		[N/mm <sup>2</sup> ]	10
Residual stress $\sigma_{dE/16}$	DIN 52 913		
175°		[N/mm <sup>2</sup> ]	39
300°C,		[N/mm <sup>2</sup> ]	25
Compressibility	ASTM F 36 J	[%]	6
Recovery	ASTM F 36 J	[%]	60
Cold compressibility $\epsilon_{KSW}$	DIN 28 090-2	[%]	6.0
Cold recovery $\epsilon_{KRW}$	DIN 28 090-2	[%]	3.0
Hotcreep $\epsilon_{WSW/200}$	DIN 28 090-2	[%]	5.5
Hot recovery $\epsilon_{WRW/200}$	DIN 28 090-2	[%]	2.0
Recovery R	DIN 28 090-2	[mm]	0.040
Leakage rate	DIN 3535-6	[mg/(m·s)]	≤ 0.100
Specific leakage rate $\lambda_{2,0}$	DIN 28 090-2	[mg/(m·s)]	0.100
Fluid resistance	ASTM F 146		
ASTM IRM903	5h/150°C		
Weight change		[%]	6
Thickness increase		[%]	2
ASTM Fuel B	5h/23°C		
Weight change		[%]	7
Thickness increase		[%]	6
Leachable Chloride content	FZT PV-001-133	[ppm]	≤ 150

## Gasket characteristics acc. DIN EN 13555 (02/2005)

T [°C]	Tightness- class L	Q <sub>min(L)</sub> [N/mm <sup>2</sup> ]				Q <sub>Smin(L)</sub> [N/mm <sup>2</sup> ]															
		P <sub>i</sub> [bar]				Q [N/mm <sup>2</sup> ]				Q [N/mm <sup>2</sup> ]				Q [N/mm <sup>2</sup> ]				Q [N/mm <sup>2</sup> ]			
		P <sub>i</sub> [bar]				Q [N/mm <sup>2</sup> ]				Q [N/mm <sup>2</sup> ]				Q [N/mm <sup>2</sup> ]				Q [N/mm <sup>2</sup> ]			
		10	20	40	80	20	40	60	80	20	40	60	80	20	40	60	80	40	60	80	
	L <sub>1,0</sub>	<5	<10	<10	<20	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
	L <sub>0,1</sub>	6	<10	11	<20	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
RT	L <sub>0,01</sub>	13	16	22	33	<5	<5	<5	<5	<10	<10	<10	<10	---	<10	<10	<10	17	<10	<10	
	L <sub>0,001</sub>	25	27	35	47	---	6	<5	<5	---	<10	<10	<10	---	16	<10	<10	---	18	17	
		Q <sub>Smax</sub> [N/mm <sup>2</sup> ]			P <sub>OR</sub> Stiffness 500 kN/mm				E <sub>6</sub> [N/mm <sup>2</sup> ]												
		Q [N/mm <sup>2</sup> ]			Q [N/mm <sup>2</sup> ]				Q [N/mm <sup>2</sup> ]												
RT	>220	0.96	0.96	0.96	10	20	30	40	50	60	70	80	100	120	140	160	180	200	220	2974	
100	120	0.87	0.84	0.73	1356	1576	1796	2016	2236	2456	2676	2896	3335	3775	4215	4655	5095	5534	5974	---	
200	80	0.82	0.74	0.68	987	1185	1384	1582	1781	1979	2177	2376	2773	3169	---	---	---	---	---	---	

Test sample: DN40/PN40 acc. EN 1514-1: 49 x 92 mm

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## Gasket characteristics acc. DIN 28090-1, AD-Merkblatt B7, DIN V 2505, ASME-Code

DIN 28090 Part 1 (9/95) (DIN E 2505 Part 2)										AD-Merkblatt B7 DIN V 2505		ASME-Code			
P <sub>1</sub> [bar]	Thickness h <sub>D</sub> [mm]	σ <sub>VU</sub> [N/mm <sup>2</sup> ]	σ <sub>V0</sub> [N/mm <sup>2</sup> ]	m	σ <sub>B0</sub> [N/mm <sup>2</sup> ]					b <sub>D</sub> : h <sub>D</sub>	k <sub>D</sub> xK <sub>D</sub> [N/mm]	k <sub>1</sub> [mm]	m	y [psi]	y [N/mm <sup>2</sup> ]
					20°C	100°C	200°C	300°C	400°C						
10	1.0	15	525	1.3	525	180	120	35	-	10 : 1	15 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	2175	15
	1.5	13	385	1.3	385	130	85	35	-	6.7 : 1	13 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	1885	13
	2.0	13	315	1.3	315	90	60	35	-	5 : 1	13 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	1885	13
	3.0	21	245	1.3	245	55	35	20	-	3.3 : 1	21 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	3045	21
16	1.0	18	525	1.3	525	180	120	35	-	10 : 1	18 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	2610	18
	1.5	15	385	1.3	385	130	85	35	-	6.7 : 1	15 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	2175	15
	2.0	15	315	1.3	315	90	60	35	-	5 : 1	15 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	2175	15
	3.0	23	245	1.3	245	55	35	20	-	3.3 : 1	23 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	3335	23
25	1.0	21	525	1.3	525	180	120	35	-	10 : 1	21 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	3045	21
	1.5	18	385	1.3	385	130	85	35	-	6.7 : 1	18 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	2610	18
	2.0	18	315	1.3	315	90	60	35	-	5 : 1	18 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	2610	18
	3.0	28	245	1.3	245	55	35	20	-	3.3 : 1	28 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	4060	28
40	1.0	25	525	1.3	525	180	120	35	-	10 : 1	25 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	3625	25
	1.5	22	385	1.3	385	130	85	35	-	6.7 : 1	22 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	3190	22
	2.0	22	315	1.3	315	90	60	35	-	5 : 1	22 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	3190	22
	3.0	36	245	1.3	245	55	35	20	-	3.3 : 1	36 x b <sub>D</sub>	1.3 x b <sub>D</sub>	2.5	5220	36

m The m-factor is a value to describe the minimum surface pressure under operating conditions. Up to now there does not exist a definite test specification. The m-factor can be looked at in different ways and depends on the tightness class, the temperature and the surface pressure in the installed state. Within the Brite EuRam research project m-factors between 1.3 and 3.8 were found as average values for graphite gaskets. The user may judge to calculate with different factors (e.g. m = 2).

m The m-factors according to DIN 28090 and ASME-code are defined variably - from this reason the values differ.

145 psi conversion factor N/mm<sup>2</sup> in psi