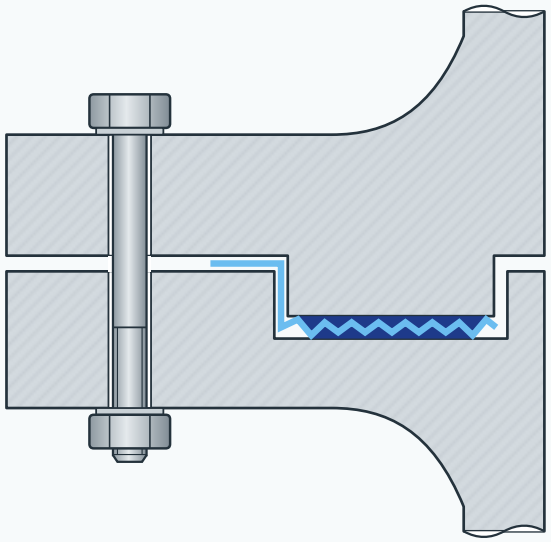
Revoseal Revolution Tongue & Groove Data Sheet

Embossed flat-profile gasket for tongue-and-groove flanges with stainless steel assembly tab



PRODUCT DESCRIPTION

The Revolution Tongue & Groove offers the same properties as the Revolution. In addition, this version is fitted with a stainless steel assembly tab for effortless installation and removal.

The Revolution gasket is an embossed flat-profile gasket made from a flexible stainless steel carrier with graphite or PTFE encapsulated on both sides. Its revolutionary design and the flexibility of the embossed tooth height provide a dual metal-to-metal seal and full encapsulation of the graphite or PTFE.

HIGHLIGHTS

- Same properties as the Revolution
- Stainless steel assembly tab for effortless installation and removal
- For flanges to DIN 2512 and EN 1514-1 TG
- Temperature: −270 °C to +500 °C
- Pressure: from vacuum to 64 bar (400 lbs)
- Exceeds the requirements of TA Luft and **VDI 2290** in conjunction with leakage verification to **EN 1591-1** (even with lower-grade bolts)
- Standard material: 1.4571 (optional: 1.4404)
- Available for DIN and ANSI flanges up to DN 400 / 16"
- Available with graphite or PTFE facing
- Total thickness 1.6 mm (± 0.1 mm)
- Fire-safe certified to **API 607** (also for PTFE), TA Luft (incl. blow-out resistance to VDI 2200), FDA compliant (PTFE version)

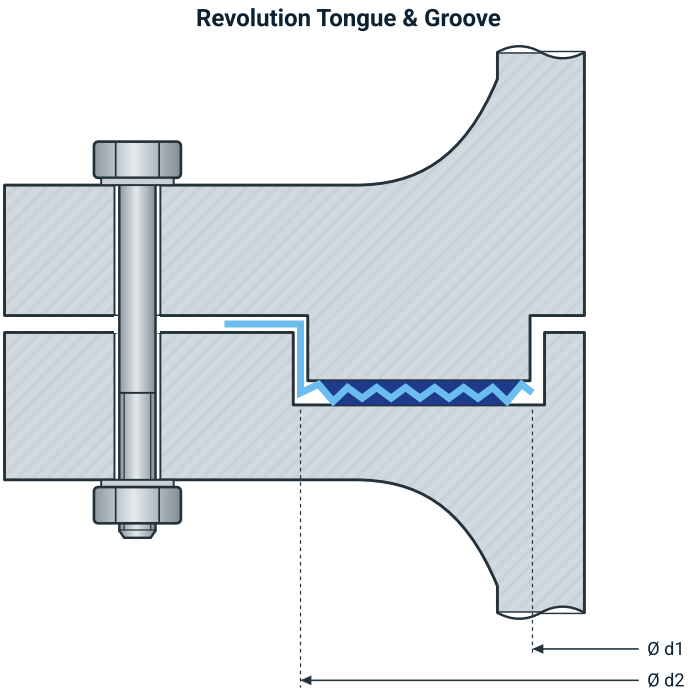
Gasket characteristics to EN 13555: values of the Revolution (determined on Revolution with graphite, 1.6 mm) – see pages 3 to 7.

Dimension table Revolution Tongue & Groove

for flanges to DIN 2512 and EN 1514-1 TG

[DN]	d1	d2
10	24	34
15	29	39
20	36	50
25	43	57
32	51	65
40	61	75
50	73	87
65	95	109
80	106	120
100	129	149
125	155	175
150	183	203
200	239	259
250	292	312
300	343	363
350	395	421
400	447	473

DN / inch = nominal size · d1 = inside diameter · d2 = outside diameter · The graphite width required for a gasket calculation is available for download on our website – revoseal.com · Total thickness 1.6 ± 0.1 mm · Design and calculation to revoseal company standard



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Gasket characteristics to EN 13555

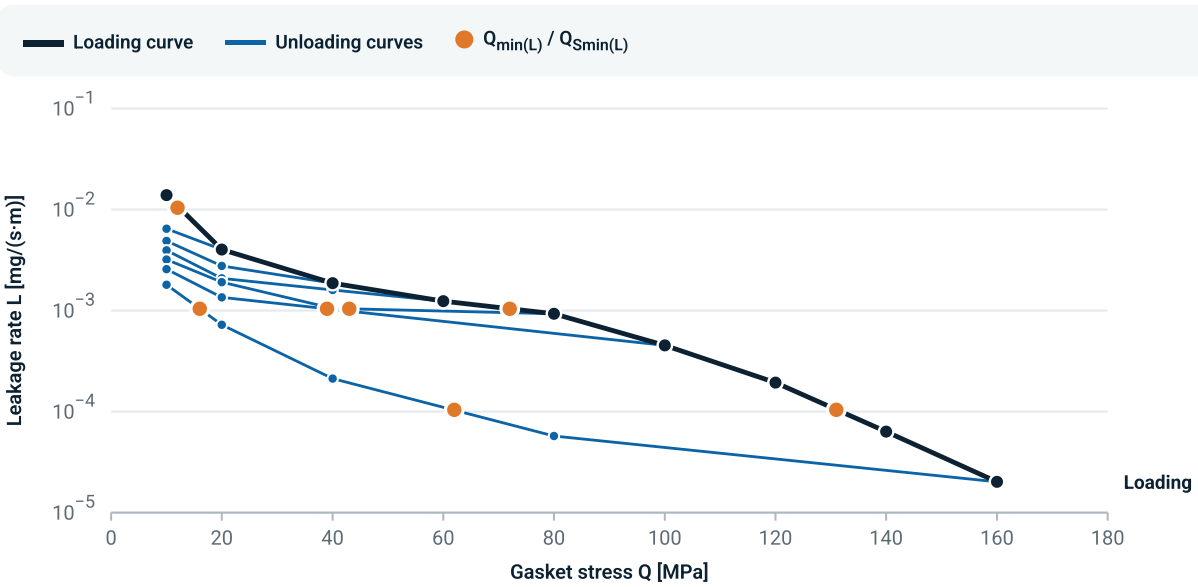
Revolution with graphite, 1.6 mm

MANUFACTURER	PRODUCT NAME	PRODUCT DIMENSIONS
revoseal Europe GmbH	Revolution with graphite	69 × 57 × 1.6 mm (DIN EN 1514-4:1997-08)
TESTED TO	**REV. NO.**	**DATE OF ISSUE**
EN 13555:2014-07	1	2017-09-06

1 Minimum gasket stress $Q_{min(L)}$ (at assembly) and $Q_{Smin(L)}$ (after unloading) for p = 10 bar (T = 23 ± 2 °C)

L [mg/(s·m)]	$Q_{min(L)}$ [MPa]	$Q_{Smin(L)}$ [MPa]								
		Q_A = 10 [MPa]	Q_A = 20 [MPa]	Q_A = 40 [MPa]	Q_A = 60 [MPa]	Q_A = 80 [MPa]	Q_A = 100 [MPa]	Q_A = 120 [MPa]	Q_A = 140 [MPa]	Q_A = 160 [MPa]
10^0	**10**		11	11	11	11	11			11
10^{-1}	**10**		11	11	11	11	11			11
10^{-2}	**13**		11	11	11	11	11			11
10^{-3}	**73**					43	40			17
10^{-4}	**132**									62
10^{-5}										
10^{-6}										
10^{-7}										
10^{-8}										

Leakage – 23 ± 2 °C / 10 bar



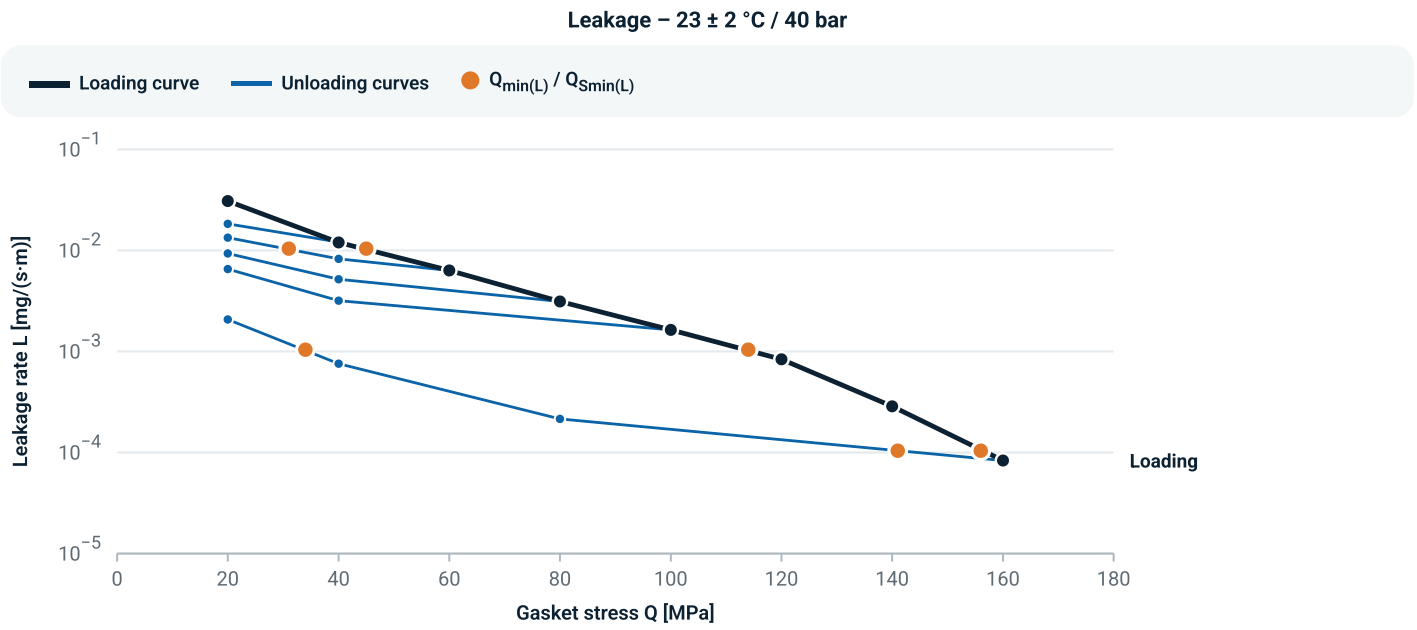
Shaded cells: not determined or not required. Rev. no.: 1 · Test report issued: 2017-09-06 · Center of Sealing Technologies, Bürgerkamp 3, 48565 Steinfurt, Germany

Gasket characteristics to EN 13555

Leakage at 40 bar internal pressure

2 Minimum gasket stress $Q_{min(L)}$ (at assembly) and $Q_{Smin(L)}$ (after unloading) for p = 40 bar (T = 23 ± 2 °C)

L [mg/(s·m)]	$Q_{min(L)}$ [MPa]	$Q_{Smin(L)}$ [MPa]							
		Q_A = 20 [MPa]	Q_A = 40 [MPa]	Q_A = 61 [MPa]	Q_A = 80 [MPa]	Q_A = 100 [MPa]	Q_A = 120 [MPa]	Q_A = 140 [MPa]	Q_A = 160 [MPa]
10^0	**20**		21	21	21	21			21
10^{-1}	**20**		21	21	21	21			21
10^{-2}	**45**			31	21	21			21
10^{-3}	**114**								34
10^{-4}	**157**								142
10^{-5}									
10^{-6}									
10^{-7}									
10^{-8}									



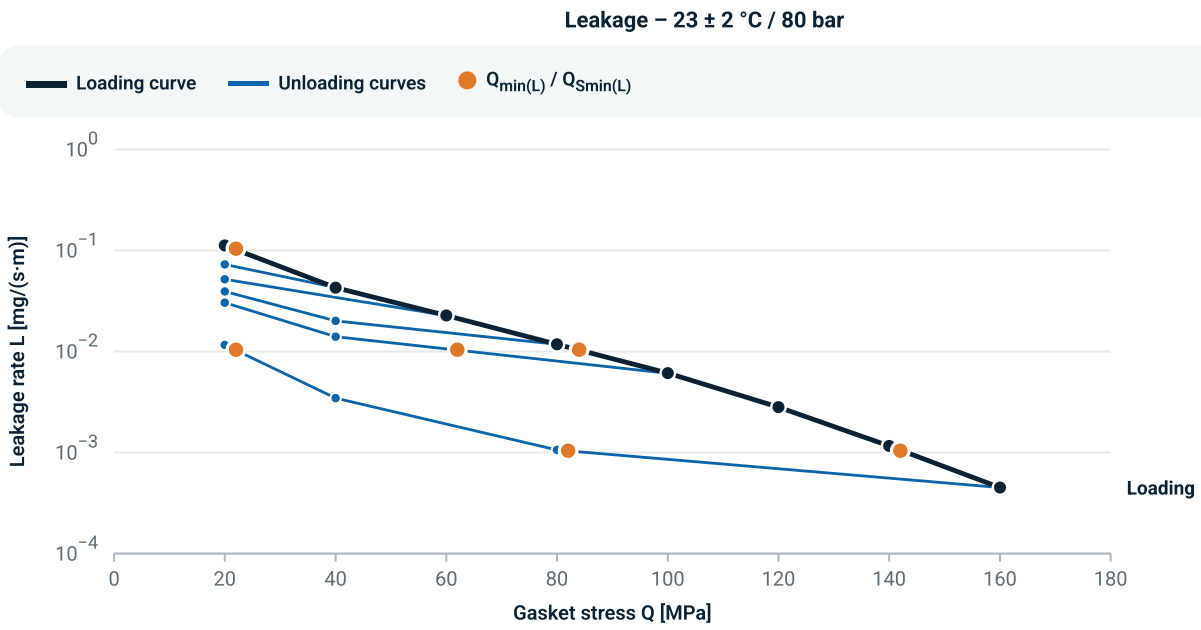
Shaded cells: not determined or not required. Rev. no.: 1 · Test report issued: 2017-09-06 · Center of Sealing Technologies, Bürgerkamp 3, 48565 Steinfurt, Germany

Gasket characteristics to EN 13555

Leakage at 80 bar internal pressure

3 Minimum gasket stress $Q_{min(L)}$ (at assembly) and $Q_{Smin(L)}$ (after unloading) for p = 80 bar (T = 23 ± 2 °C)

L [mg/(s·m)]	$Q_{min(L)}$ [MPa]	$Q_{Smin(L)}$ [MPa]							
		Q_A = 20 [MPa]	Q_A = 40 [MPa]	Q_A = 60 [MPa]	Q_A = 80 [MPa]	Q_A = 100 [MPa]	Q_A = 120 [MPa]	Q_A = 140 [MPa]	Q_A = 160 [MPa]
10^0	**20**		21	21	21	21			21
10^{-1}	**22**		21	21	21	21			21
10^{-2}	**84**					62			22
10^{-3}	**143**								83
10^{-4}									
10^{-5}									
10^{-6}									
10^{-7}									
10^{-8}									



4 Creep relaxation factor P_{QR} at stiffness C = 500 kN/mm

Gasket stress	23 ± 2 °C		200 °C		400 °C	
	P_{QR}	Δe_{Gc} [µm]	P_{QR}	Δe_{Gc} [µm]	P_{QR}	Δe_{Gc} [µm]
Stress level 1 [70 MPa]	0.99	2	0.87	22	0.87	22
Stress level 2 [180 MPa]	1.00	2	0.94	26	0.92	36
Stress level 3 [320 MPa]	1.00	0	0.96	30	0.94	46
P_{QR} and Δe_{Gc} at maximum permissible gasket stress Q_{Smax}						
P_{QR} at Q_{Smax}	1.00	0	0.98	30	0.93	68
Q_{Smax}	500 MPa		500 MPa		380 MPa	

Shaded cells: not determined or not required. Rev. no.: 1 · Test report issued: 2017-09-06 · Center of Sealing Technologies, Bürgerkamp 3, 48565 Steinfurt, Germany

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Gasket characteristics to EN 13555

Unloading modulus and gasket thickness

5 Secant unloading modulus of the gasket E_G [MPa] and gasket thickness e_G [mm]

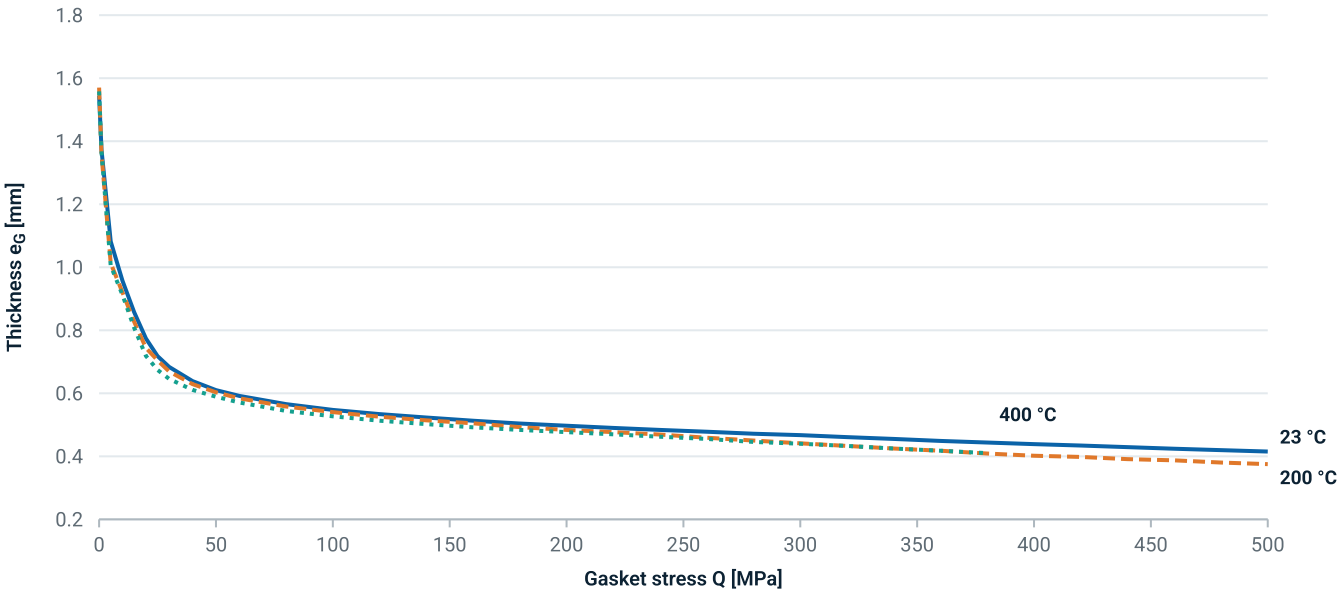
Gasket stress [MPa]	23 ± 2 °C		200 °C		400 °C	
	E_G [MPa]	e_G [mm]	E_G [MPa]	e_G [mm]	E_G [MPa]	e_G [mm]
0	0	1.544	0	1.570	0	1.558
1	0	1.373	0	1.359	0	1.364
5	131	1.082	188	1.013	157	1.005
10	243	0.957	328	0.920	272	0.912
15	380	0.858	533	0.827	519	0.808
20	509	0.774	984	0.744	779	0.719
25	686	0.718	2,220	0.705	1,452	0.674
30	857	0.684	2,777	0.669	3,279	0.646
40	1,171	0.639	3,844	0.629	4,652	0.611
50	1,422	0.610	4,014	0.603	6,016	0.589
60	1,716	0.592	3,159	0.584	6,104	0.571
80	2,232	0.566	2,940	0.558	5,591	0.544
100	2,648	0.547	2,724	0.540	4,687	0.527
120	2,951	0.534	2,832	0.526	3,675	0.513
140	3,253	0.523	2,660	0.514	3,036	0.502
160	3,363	0.513	3,018	0.505	2,960	0.492
180	3,454	0.504	2,930	0.493	3,157	0.484
200	3,539	0.497	2,913	0.484	3,204	0.477
220	3,701	0.490	3,244	0.477	3,134	0.470
240	3,827	0.484	3,240	0.469	3,240	0.462
260	3,820	0.478	3,104	0.459	3,217	0.455
280	3,884	0.472	3,241	0.450	3,023	0.446
300	3,907	0.467	3,264	0.441	3,226	0.440
320	3,982	0.461	3,360	0.433	3,267	0.433
340	3,932	0.455	3,365	0.425	3,171	0.425
360	3,921	0.449	3,492	0.418	3,322	0.418
380	3,975	0.444	3,329	0.409	3,212	0.410
400	3,969	0.439	3,487	0.402		
420	4,032	0.434	3,599	0.398		
440	3,983	0.429	3,485	0.391		
460	4,024	0.424	3,734	0.387		
480	4,029	0.420	3,665	0.380		
500	4,048	0.415	3,942	0.375		

Shaded cells: not determined or not required. Rev. no.: 1 · Test report issued: 2017-09-06 · Center of Sealing Technologies, Bürgerkamp 3, 48565 Steinfurt, Germany

Gasket characteristics to EN 13555

Gasket thickness e_G

6 Gasket thickness e_G vs. gasket stress at 23, 200 and 400 °C



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BOLTED FLANGE JOINT CALCULATION

Based on these characteristics, we calculate your bolted flange joint to EN 1591-1 – free of charge.

All data are typical values and do not replace a case-specific design. Subject to technical change.