

# Marston



## BURSTING DISCS

NT / NTG  
Forward Acting Discs



# Marston

Marston, a Division of Safety Systems UK Limited, has over 50 years experience of the design manufacture and application of bursting disc equipment.

The applications for bursting discs are as diverse as the Industries that use them. Chemical, Oil, Gas and food as well as cryogenic and transportation are typical examples. The selection of the most suitable bursting disc can be critical. The range of designs is extensive, and the optimum choice can be provided.

## NT / NTG Bursting Discs

NT conventional discs are simple forward acting discs. They are manufactured from thin precise foils, usually metallic, chosen to satisfy the individual process requirements. Since NT discs generally fragment upon bursting they are not recommended for the protection of Safety Relief Valves.

NTG discs are also forward acting discs but which incorporate a precise scoring across the dome. When the disc is subjected to excessive pressure the disc bursts and opens along the scored groove lines without fragmentation making it an ideal disc for the upstream protection of safety relief valves.

With no grooves on the process side of the disc, the NTG disc has a smooth surface, which minimises the likelihood of product deposition and build-up.

When subjected to vacuum conditions, many NT discs will require a vacuum support though NTG discs will often withstand high levels of vacuum without a support.

Both disc types are suitable for all relieving phases. Operating ratios are dependent on materials, pressures and temperatures. The NT disc type is generally suitable for operating ratios of up to 70% of minimum bursting pressure, whilst the NTG can generally be operated at up to 80%. It is however possible that both designs, particularly at higher pressures, may be capable of 90% operating ratios.



## Quality

Marston is fully committed to an ongoing Total Quality Improvement programme. This was recognised with Marston audited and approved to design and manufacture bursting discs with its Quality Control procedures registered to the highest standards required by BS EN ISO 9001 Certification.

Quality is an integral part of all processes to provide customer satisfaction and confidence.

NT / NTG bursting discs are manufactured and tested in accordance with the requirements of the relevant standard, including BS2915, AD Merkblatt A1, ISPEL, ASME VIII, ISO 6718 and EN ISO 4126.

All of Marston standard disc designs have been approved for use in accordance with the requirements of the P.E.D., 97/23/EC.

## Corrosion Resistance

NT / NTG bursting discs can be manufactured from all commonly used disc materials, including Tantalum, Nickel alloys and Stainless Steel. Fluorocarbon lining provides an excellent protection for corrosive duties.

## The Effect of Temperature

Changes in temperature affect all bursting disc materials. Typically, as the temperature rises, the material strength reduces and the bursting pressure falls.

### Allowable Temperature Ranges

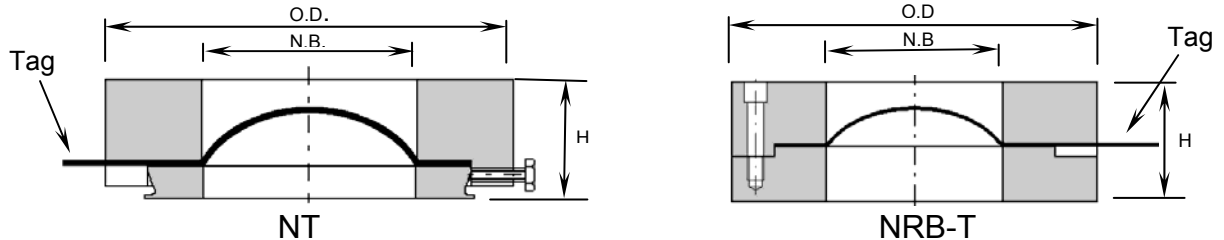
Maximum Temp. °C	Disc Material	Minimum Temp. °C
500	Nickel 200	-200
550	Monel 400	-200
550	Inconel 600	-200
500	St. St. 316	-200
500	Hastelloy C	-200

## Features

Feature	NT Performance	NTG Performance
Fragmentation	<b>Probable</b>	<b>None</b>
Operating Ratio	Up to <b>70%</b> (Typical)	Up to <b>80%</b>
Vacuum Duty	Generally Requires Support	Generally <b>Full Vacuum</b>
Pressure Cycling Duties	<b>Satisfactory</b>	<b>Good</b>
Leak Tightness (To Vent)	$<1 \times 10^{-6}$ mbar.l.sec <sup>-1</sup>	$<1 \times 10^{-6}$ mbar.l.sec <sup>-1</sup>
Leak Tightness (To Atmosphere)	$<1 \times 10^{-5}$ mbar.l.sec <sup>-1</sup>	$<1 \times 10^{-5}$ mbar.l.sec <sup>-1</sup>
K <sub>R</sub> Value	<b>N/A</b>	<b>K<sub>RGL</sub> 0.4</b>

## Holders

The standard holder is a two-piece unit designed to fit inside the flange bolts of a system. When necessary, a full-face assembly having through boltholes can be supplied. Special designs are always available, providing specific facings, foolproofing devices or pressure tappings, for example. The bursting disc dome is fully protected during installation. Pre-torqued holder designs 'NRB-T' are also available. Marston standard holders are not sensitive to the flange bolt torque loading.



The tables below list the sizes of holders, for typical flat faced pipe flange ratings.

### Holder Dimensions (mm)

N.B.	'NT' Height	'NRB-T' Height	Outside Diameter			
			ASA 150	ASA 300	PN10	PN16
25	21	38	66	73	73	73
40	22	38	85	95	94	94
50	25	38	104	111	109	109
80	33	38	136	149	144	144
100	43	38	174	181	164	164
150	59	46	222	251	220	220
200	72	56	279	308	275	275
250	87	68	339	362	330	331
300	103	76	409	422	380	386
350	125	83	450	485	440	446
400	144	92	514	539	491	498
500	171	106	606	654	596	620

### NT Minimum Bursting Pressures (Barg @ 20° C)

N.B.(mm)	25	50	80	100	150	200	250	300	400	500
Disc Material										
Nickel 200	7.5	3.8	2.5	1.9	1.3	0.8	1.7	1.4	1.0	0.8
Monel 400	12.5	6.0	4.0	3.0	2.0	1.8	1.5	7.0	5.3	4.2
Inconel 600	17.0	8.5	5.6	4.5	2.8	2.1	1.7	1.4	1.0	0.8
St St 316	20.0	10.0	6.5	5.0	3.5	2.5	2.0	1.7	1.25	1.0
Aluminium	1.7	0.8	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.3

### NTG Minimum Bursting Pressures (Barg @ 20° C)

N.B.(mm)	25	50	80	100	150	200	250	300	400	500
Disc Material										
Nickel 200	4.0	2.6	2.0	2.5	1.9	1.4	1.4	1.4	1.4	4.0
Hastelloy	10.5	7.0	5.2	5.0	3.8	2.7	2.7	2.7	2.7	10.5
Inconel 600	8.6	5.9	4.5	4.8	3.8	2.4	2.4	2.4	2.4	8.6
St St 316	8.3	5.5	4.1	4.0	3.0	2.1	2.1	2.1	2.0	8.3
Aluminium	2.1	1.4	1.0	0.7	0.6	0.3	0.3	0.3	0.3	2.1

- Lower Bursting Pressures may be available. Please consult Marston for further assistance.

## Tolerances

Standard tolerance on all NTG bursting discs over 1.0 Bar is +/-5%. Improved tolerances may be available. Please consult Marston for further assistance.

# Marston

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As part of Marston's commitment to serving its customers, several regional offices have been established across the world.

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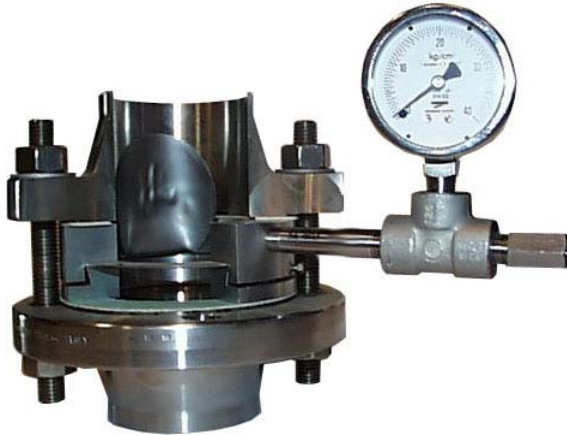
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## Accessories:

### EFV, Nipple, Tee and Pressure Gauge

An Excess Flow Valve (EFV) is a device to prevent the build up of any back pressure between a disc and any other equipment located downstream. This is recommended particularly when a disc is used upstream of a Safety Relief Valve. It is often used in conjunction with a Pressure Gauge which provides simple visual indication of disc failure.



### Burst Disc Indicator



A Burst Disc Indicator is a simple circuit, usually fitted downstream of the bursting disc, which is broken on rupture. Marston manufacture burst indicators which are fitted directly to the disc as shown and to fit between the holder and the downstream pipe flange

BS EN ISO 9001  
ASME  
TÜV  
Chinese SQL



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