

# Flame Arrestor

End-of-line,  
with automatic opening hood,  
deflagration

**Model 312**



## Product Description

Storagetech Flame Arresters ( End-of-line, with Automatic Opening Hood) are passive devices that prevent the propagation of a flame or fire from entering into vessel discharging flammable vapor.

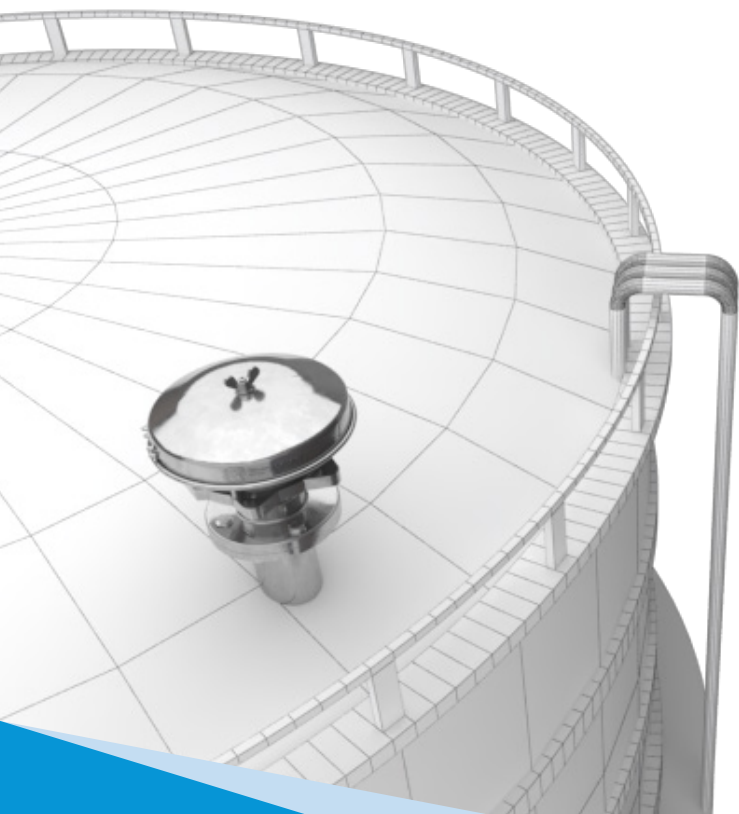
As different from model 310, Model 312 end of line flame arrester's weather hood is designed to react to fire instantly thanks to its fusible link, which is melted during the fire and lets the weather hood release the gas/fire into the atmosphere.

The flame cell, under normal operation, allows the free flow of vapor, although it does introduce some additional pressure loss that must be considered in the design of the system. This deflagration flame arrester is suitable for quenching subsonic flames and should be located at the end of a pipeline or exit from a vessel.



StorageTech provides the high quality and reliable solutions for your needs with 40 years of experience.

Your investments will be much safer with Storagetech™ Flame Arrestor solutions, which are completely produced in accordance with international norms.



Standard Sizes	2" to 8"
Body / Flanges	1- Carbon steel 2- Stainless steel AISI 304 –L or 316-L 3- Aluminium 4- Customer Specification
Flange Drilling	ANSI #150, PN16, and Special
Flame Element	Stainless steel AISI 304 –L or 316-L
O-ring Seal	Nitrile, Viton, PTFE, Special
Screen	SS 304
Paint Finish	1- Powder Coating, Colour RAL 9006 2- Epoxy Paint, Colour RAL 9006 3- Customer Specification
ATEX Cert	Ex II 1/2 G IIA , G IIB

## End-Of-Line Flame Arrester, With Automatic Opening Hood

It should be installed in the horizontal plane and is not for use with pressure relief valves or pressure-vacuum relief valves. A weather hood and screen protect the vent and restricts dust, wind, rain, or insects from entering and degrading the efficacy of the product.

Its cap has a special opening mechanism, which allows opening automatically after a certain time and temperature, so that heat generated by the flames is released to the atmosphere without being transferred to the product. The cell can be removed for cleaning or replacement purposes.

## Design & Manufacturing Specifications



The size of the vent will be calculated in accordance with API Standard 2000 - Venting Atmospheric and Low Pressure Storage Tanks or other international standards.



## Key Features

- Model 312 end of line flame arrester's weather hood is designed to react fire instantly tanks to it's fusible link, which is melted during the fire and let the weather hood release the gas/fire to the atmosphere.
- Internal materials are stainless steel and carbon steel.
- Easy to clean internal materials. Easy to install. You do not need a special tool or experience to install the StorageTech™ flame arrester Model 312.
- Comes with the paint color you choose.
- Standard manufacturing comes with all standards such as ANSI 150#, ASME and PN class flange; however other flange types are available up on request. Protection cap is manufactured from aluminum material.

## Product Benefits

The area of each passage determines level of protection that the element provides. StorageTech TM Model 312 Inline Deflagration Flame Arrestor has a Maximum Experimental Safe Gap as per standard, and is suitable for gas groups IIB and IIA.

Flame arresters are usually designed for use at ambient temperature and pressure. Please consult StorageTech experienced and trained engineers for advice if other conditions are encountered. Higher temperatures and pressures put increased load on the flame arrester and testing under actual or simulated conditions may be required.

Regular inspection and maintenance of flame arresters is essential. If a flashback is known or believed to have occurred then the arrester should be inspected for damage. Small cells or components of the flame arrester are prone to dirt collection and clogging, leading to increased pressure drop. Damaged or dirty elements should be replaced. It is usually possible to clean the element for reuse. When properly maintained, a flame arrester can provide many years of service.

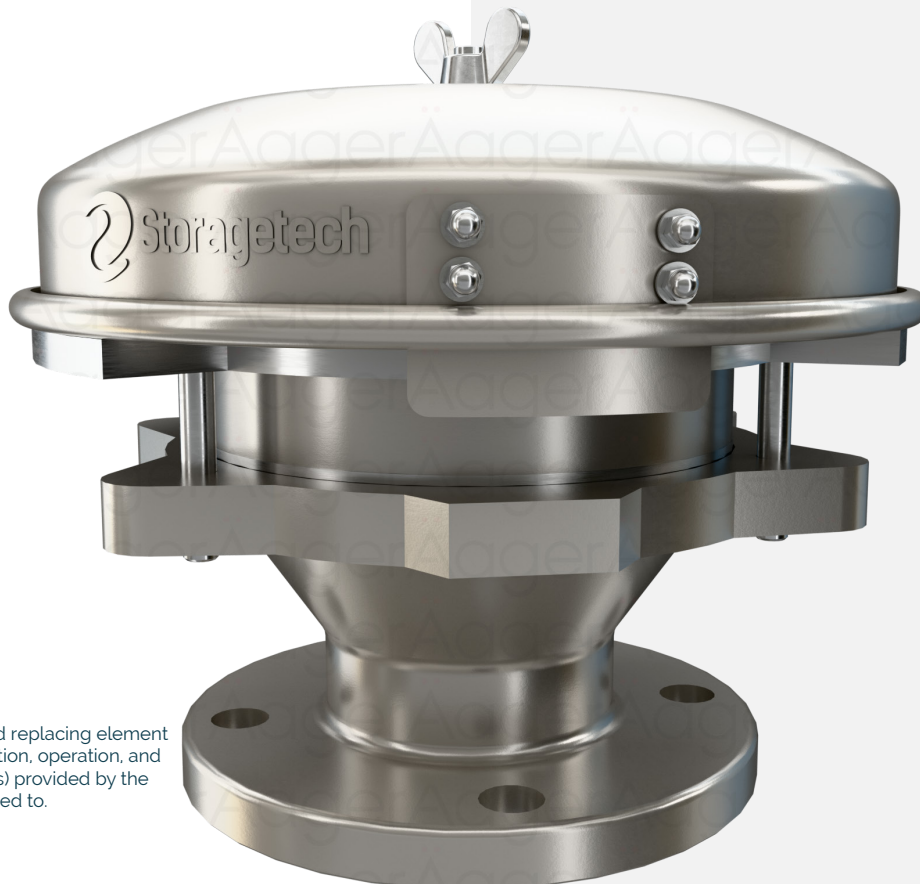
## Unconfined Deflagration

Unconfined deflagration is caused by the ignition of a flammable gas outside a container or equipment. For example, vent gas from a gasoline tank can create a cloud of flammable vapor around it. A lit cigarette, static electricity or lightning can ignite this vapor and the resulting flame can return to the tank.

## Confined Deflagration

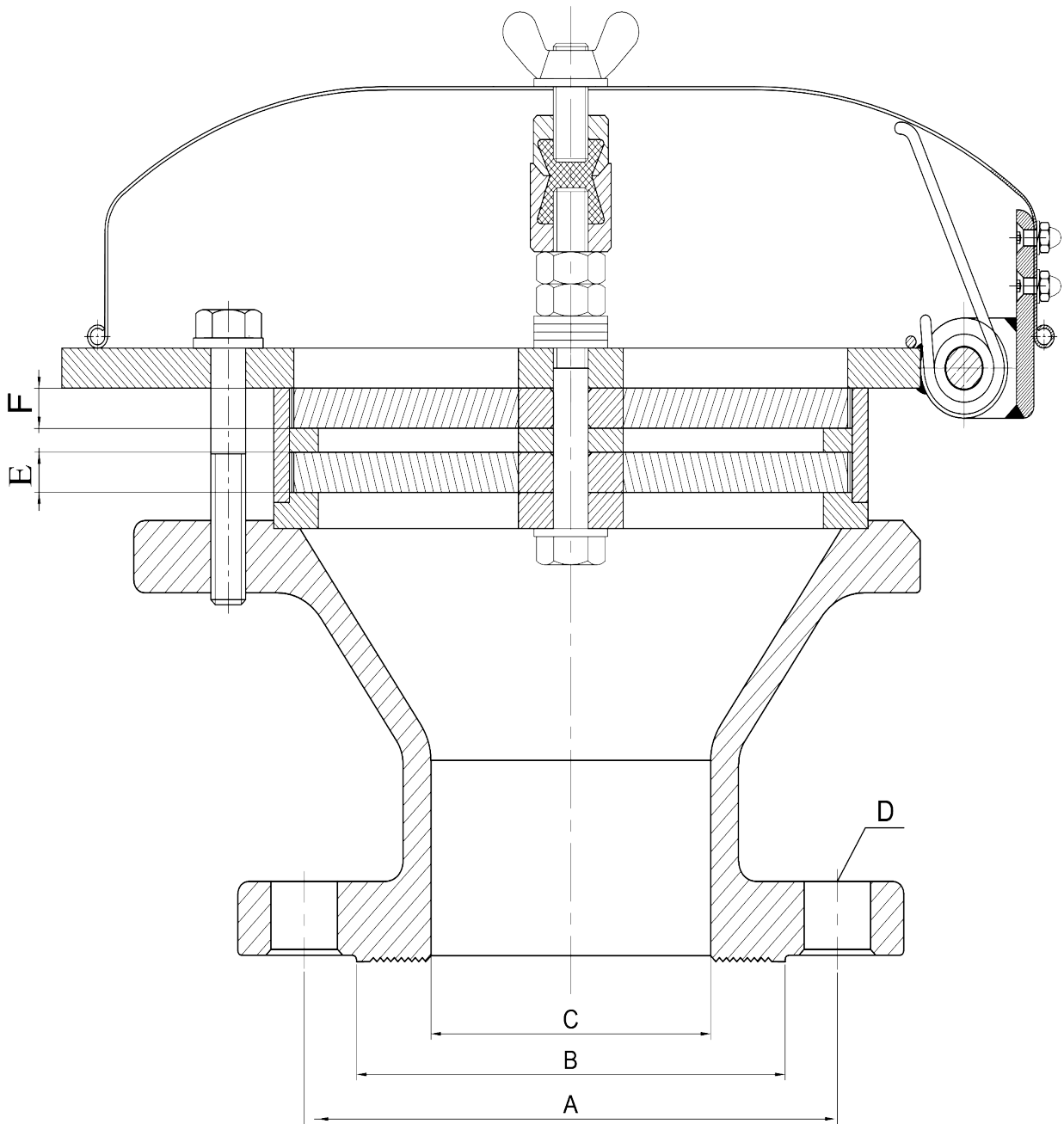
When a flammable mixture in a pipeline is ignited, the flame front initially travels along the pipe at subsonic speeds, a phenomenon called confined deflagration.

For example, methane gas produced in underground coal mines is transported to the surface through a pipe and burned in a boiler. However, a malfunction in the boiler or pumping system can ignite the gas in the pipe and the flame can travel along the pipe and explode the gas underground.



\* When removing, cleaning, and replacing element banks, it is vital that the installation, operation, and maintenance instructions (IOMs) provided by the manufacturer are strictly adhered to.

## Technical Drawing



SIZE		A		B		C	D		E	F
NPS	DN	ANSI 150# RF	PN 16	ANSI 150# RF	PN 16		ANSI 150# RF	PN 16		
2"	50	92	102	120.6	125	60	Ø19x4	Ø18x4	10	10
3"	80	127	138	152.4	160	90	Ø19x4	Ø18x8	10	10
4"	100	157.2	158	190.5	180	100	Ø19x8	Ø18x8	10	10
6"	150	216	212	241.3	240	150	Ø22x8	Ø22x8	10	10
8"	200	270	268	298.4	295	210	Ø22x8	Ø22x12	10	10

<b>A</b>	•Element Diameter
A-H	•Element Height
<b>B</b>	•Element Housing Diameter
B-H	•Element Housing Height
<b>C</b>	•Element Holder Diameter
C-H	•Element Holder Height
<b>D</b>	•Spacer Diameter
D-H	•Spacer Height

MODEL	End-Of-Line Flame Arrestor, With Automatic Opening Hood, Deflagration					
	SIZE	2"	3"	4"	6"	8"
<b>A</b>		100	150	200	250	400
A-H		10	10	10	10	10
<b>B</b>		150	200	250	300	450
B-H		90	90	90	100	100
<b>C</b>		150	200	250	300	450
C-H		10	10	10	20	20
<b>D</b>		100	150	200	250	400
D-H		6	6	6	6	6

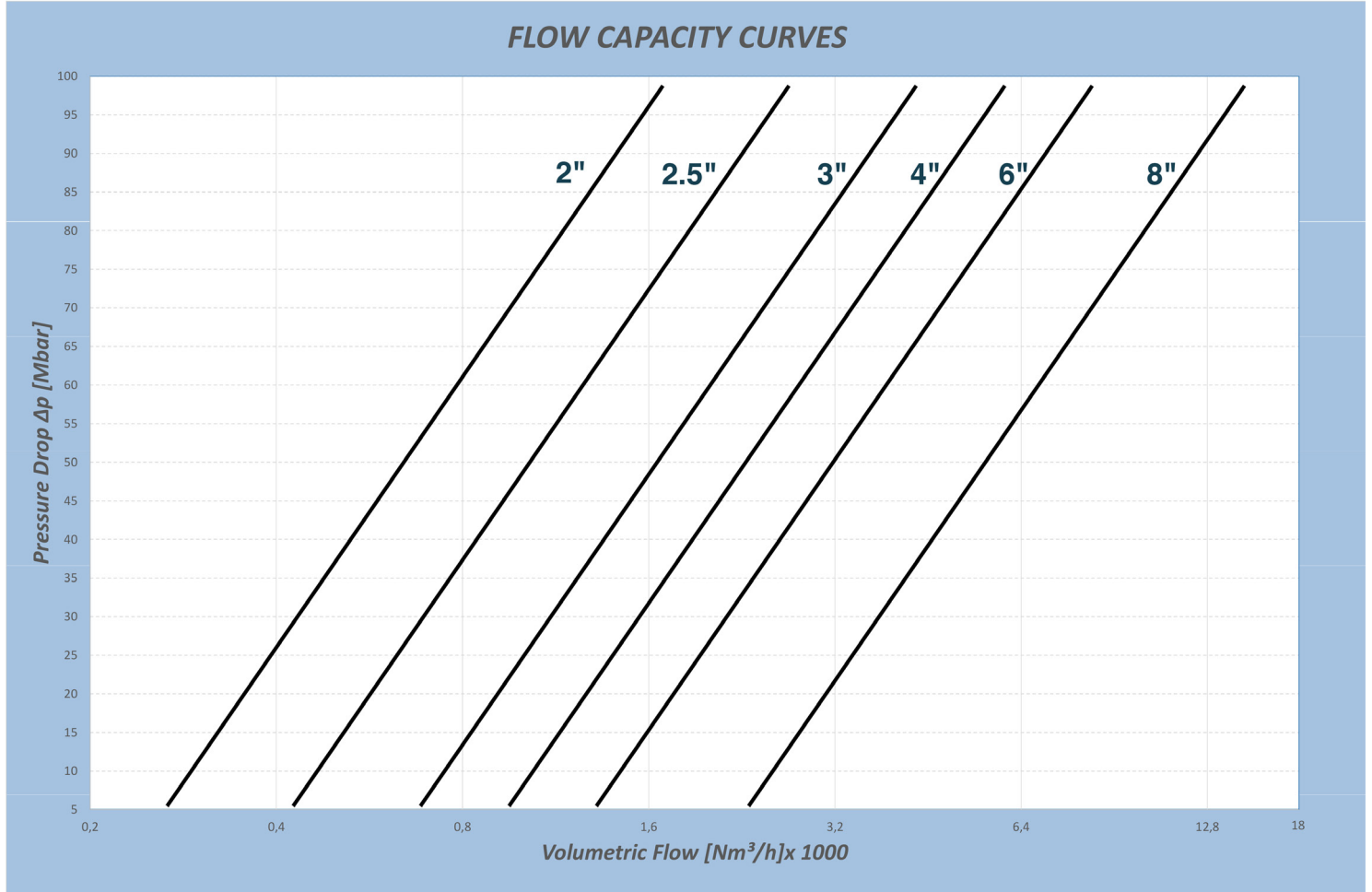
## Flow Capacity Tables

Pressure Drops (mbar)

Gas Group	Element	Pipe Size	Flow in Nm <sup>3</sup> /h Air																		
			5	10	15	20	30	40	50	60	70	80	90	100	150	200	300	400	500		
IIA/IIB	100/10/50	DN50	2"	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1.1	1.9	4.2	8.3	12.2	
	130/10/50	DN65	2.5"	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	1.8	3.2	4.9	
	150/10/50	DN80	3"	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.3	1.9	
	200/10/50	DN100	4"	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6
	250/10/50	DN150	6"	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	400/10/50	DN200	8"	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Gas Group	Element	Pipe Size	Flow in Nm <sup>3</sup> /h Air																	
			600	700	800	900	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	12000	16000	18000	
IIA/IIB	100/10/50	DN50	2"	18.6	25.3	33.2	42.1	52.3												
	130/10/50	DN65	2.5"	7.3	10.1	13.4	16.3	20.6	85.4											
	150/10/50	DN80	3"	2.7	3.8	4.9	6.2	7.5	30.8	71.6										
	200/10/50	DN100	4"	0.9	1.3	1.6	2	2.6	9.9	23.4	39.9	65.5								
	250/10/50	DN150	6"	0.5	0.7	0.9	1.2	1.5	6.1	13.9	24.8	38.6	56.4	78.8	102.4	131.4	163.6			
	400/10/50	DN200	8"	<0.5	<0.5	<0.5	<0.5	0.5	1.9	3.7	7.9	12.8	18.4	25.2	33.1	41.7	51.6	74.9	137.3	176.1

## Flow Capacity Curves



# Product Recommendations



## Biogas Safety Selector Valve (SSV)

Model: 250

The Storagetech Biogas Safety Selector Valve (SSV) is an advanced, cost-effective alternative to traditional three-way plug valves, designed for seamless operation in biogas systems. It enables smooth switching between Pressure and Vacuum Relief Valves (PVRs) with Flame Arrestors, ensuring uninterrupted operation during maintenance.

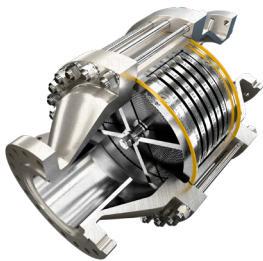


## Pressure Vacuum Relief Valve With Flame Arrestor

End-Of-Line,  
Weight Loaded,  
Combination,  
Atmospheric Deflagration  
Proof

Model: 300

Storagetech™'s Model 300 Pressure Vacuum Relief Valve with Flame Arrestor provides protection to bulk storage tanks and vessels from over and under pressurization.



## Flame Arrestor

Vertical,  
In-Line,  
Detonation

Model: 320

Storagetech™'s Model 320 In-line Detonation Flame Arrestor (also called flame arrestor or fire arrestor) is designed for installation in gas pipelines. Detonation occurs when a flame travelling through the pipeline reaches supersonic velocities, usually as a result of the pipeline configuration or pipeline surface roughness. Changes in gas density and pressure causes the flame velocity to metamorphose from subsonic to supersonic.



## Flame Arrestor

Horizontal,  
In-Line,  
Detonation

Model: 321

Storagetech™'s Model 321 In-line Detonation Flame Arrestor (also called flame arrestor or fire arrestor) is designed for installation in gas pipelines. Detonation occurs when a flame travelling through the pipeline reaches supersonic velocities, usually as a result of the pipeline configuration or pipeline surface roughness. Changes in gas density and pressure causes the flame velocity to metamorphose from subsonic to supersonic.

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### data sheet series

Flame Arrester End-of-line,  
with a. opening hood, def.

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storagetech.de



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