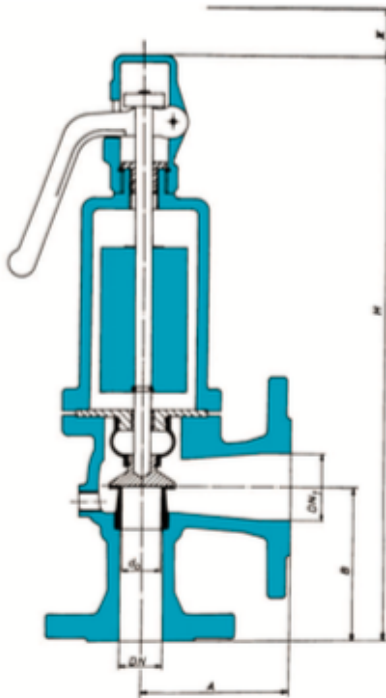


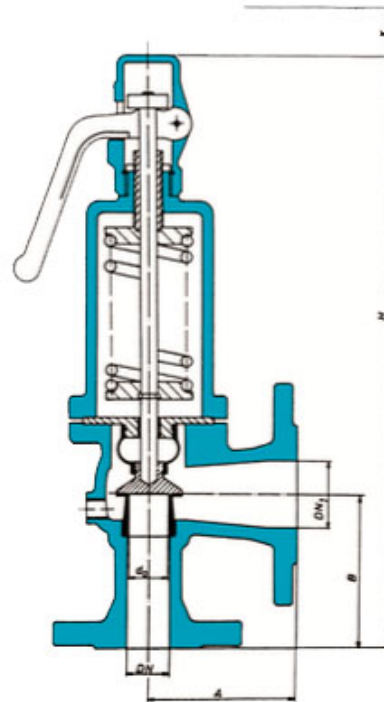
# Säkerhetsventiler (Type 392 / 393 Diaphragm Closed Bonnet Safety Valve)

 **392**



Series 392  
nom. diam. 25 to 50

 **393**



Series 393  
nom. diam. 25 to 100  
nom. diam. 125 to 150

## Product Overview

**Maximum blow-off rate due to low flow losses.** Special research led to the development of a simple construction of the flow passages leading to optimum efficiency and performance.

**Series 392.** Diaphragm High-Efficiency Safety Valve – These safety valves are for blowing-off saturated steam from pressure generators. Series 392 with closed bonnet, response overpressures: 1 bar, nom. diam. 25 to 50. Weight loaded, diaphragm type, high-efficiency safety valve, angled, with highly elastic seal and metal backing in valve head. Lifiable valve head.

**Series 393.** Diaphragm High-Efficiency Safety Valve – These safety valves are for blowing-off saturated steam from pressure generators. Series 393 with closed bonnet, response overpressures: 1 bar, nom. diam. 25 to 100, nom. diam. 125 to 150. Spring loaded, diaphragm type, high-efficiency safety valve, angled, with highly elastic seal and metal backing in valve head. Lifiable valve head.

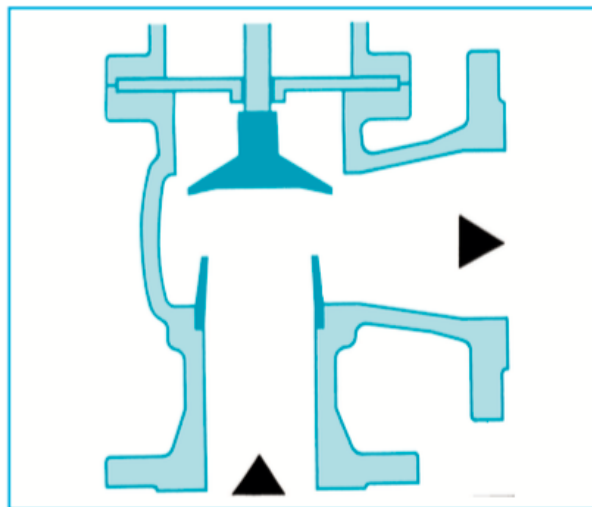
## General Operation

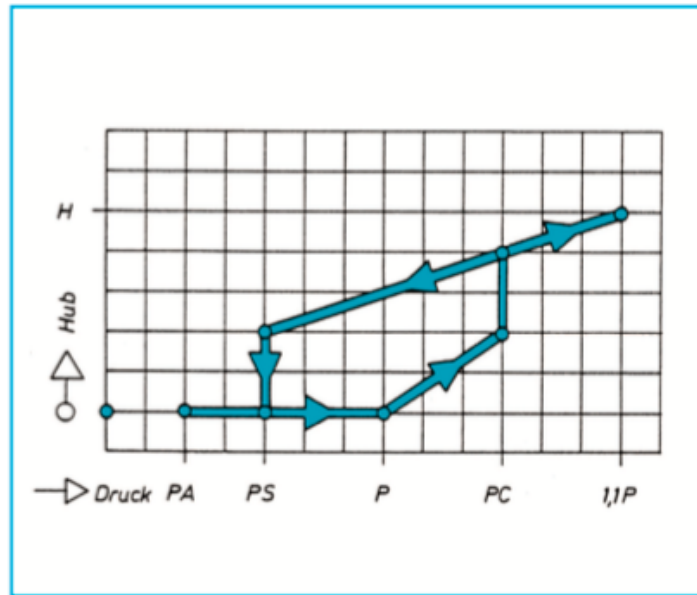
### Valve design

The schematic on the left shows the simple and efficient construction of the THIES High-efficiency Safety Valve. At the inlet the incoming fluid is compressed slightly to compensate for any vortices and then discharges to the side through the gap between valve head and valve seat. The special design of the valve seat and valve head result in the high-efficiency operation as described below.

### Operation

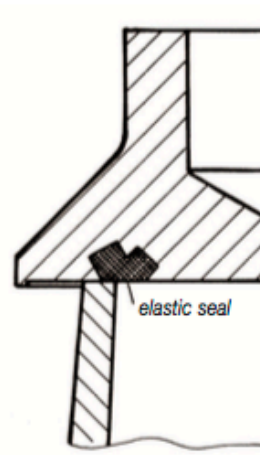
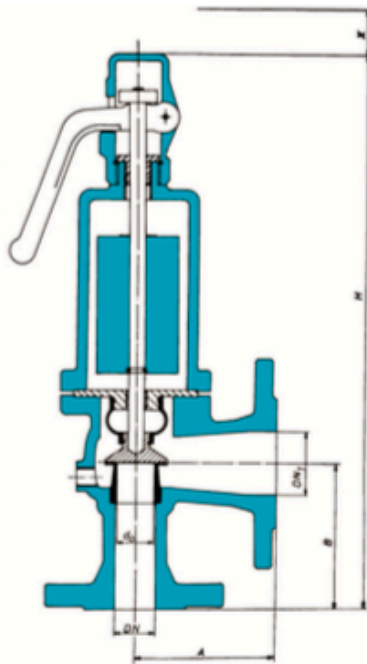
THIES High-efficiency Safety Valves start to open at response pressure  $P$ . Additional increases in pressure produce proportionate valve opening, until pressure  $P_C$  is reached. This produces instantaneous opening of the port's full cross section. At a pressure 10% in excess of the response pressure lift  $H$  is measured, on which the design value of the outflow is based. The valve closes again as the pressure drops. At closing pressure  $P_S$  the valve is fully shut. In order to ensure proper and reliable valve functioning the plant operating pressure should be  $P_A$ . The values of the rate of flow certified by the type approval mark issued by the German Technical Inspection Authority (Vd TÜV Essen) are determined by taking the lowest measured value for a particular series and subtracting a 10% safety margin.





 **392**

**with closed bonnet**

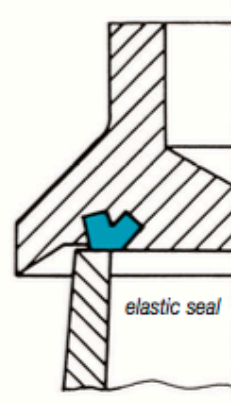
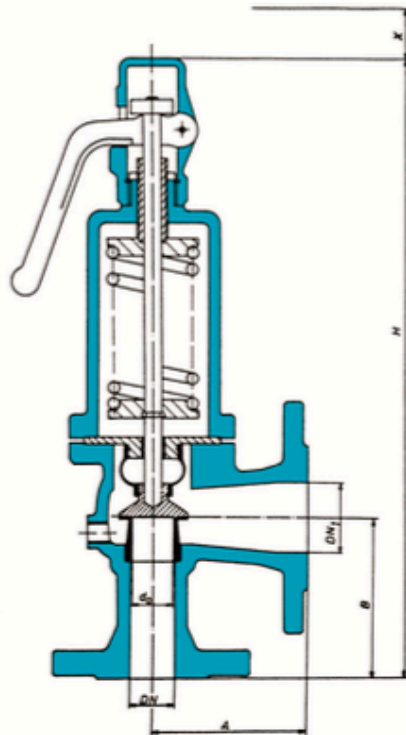


**response overpressure:  
1 bar**

**Series 392  
nom. diam. 25 to 50**

 **393**

**with closed bonnet**



**response overpressure:  
1 bar**

Series 393  
nom. diam. 25 to 100  
nom. diam. 125 to 150 not shown

## Diaphragm type High-efficiency Safety Valves

**Application:** These safety valves are for blowing-off saturated steam from pressure generators.

THIES-diaphragm high-efficiency safety valves meet the following German requirements: the AD Specification A 2 for „Safety Valves“, the Technical rules for steam boilers (TRD 721), the Safety Valves Code according to **DIN 4750 and 4751 Pt. 1. Response overpressure: 1 bar.**

Proof marks as follows have been issued by the official German Technical Inspection Authority (Vd TÜV Essen):

## Series 392 (DN 25 to DN 50)

TÜV · SV · \*\* - 368 · do · D · G · 1

Weight loaded, diaphragm type, high-efficiency safety valve, angled, with highly elastic seal and metal backing in valve head.

## Series 393

TÜV · SV · \*\* - 368 · do · D · G · 1 (DN 25 to DN 100)

TÜV · SV · \*\* - 775 · do · D · G · 1 (DN 125 to DN 150)

Spring loaded, diaphragm type, high-efficiency safety valve, angled, with highly elastic seal and metal backing in valve head.

## Series 392/393

with closed bonnet

Valve head is liftable. Force is transmitted centrally at valve head via a ball. Corrosion-resistant spindle guides ensure reliable and precise response of the valve.

### Flange connection:

Grey cast iron version: inlet and outlet as per  
 DIN 2533 PN 16

Spheroidal graphite iron version and cast steel version:  
 inlet as per DIN 2545 PN 40, outlet as per DIN 2543 PN 16

### Materials:

Valve body	GG 25, GGG 40.3, GS-C 25 or 1.4581
Protective bonnet	GG 25, GGG 40.3, GS-C 25 or 1.4408
Valve seat	Niro 1.4021/1.4301 or 1.4541
Valve head	Niro 1.4305 or 1.4571
Spindle, polished	Niro 1.4021 or 1.4571
Guide bushes	Niro 1.4301, Ms 58 or Rg 7
Load weight (392)	Pb
Spring (393)	Niro 1.4310, DIN 17223 C or 50 CrV4
Rubber diaphragm (max. 140°C)	EPDM

Models	Order Code No.		Example of Order:						
Series 392 of GG 25	PN 16 DN 25- 50	392 GN	1 x 393 GN 25						
Series 393 of GG 25	PN 16 DN 25-150	393 GN	i. e. 1 THIES-diaphragm type high-efficiency safety valve, series 393						
Series 392 of GGG 40.3	PN 40 DN 25- 50	392 GGG	made of grey cast iron/Niro, nom. diam. 25/40, PN 16						
Series 393 of GGG 40.3	PN 40 DN 25-150	393 GGG	response overpressure 1 bar.						
Series 392 of GS-C 25	PN 40 DN 25- 50	392 SNC							
Series 392 of 1.4581	PN 40 DN 25- 50	392 EN							
Series 393 of GS-C 25	PN 40 DN 25-150	393 SNC							
Blow off rates for saturated steam, response overpressure 1 bar									
DN	25	32	40	50	65	80	100	125	150
DN <sub>1</sub>	40	50	65	80	100	125	150	200	250
kg/h (Series 392)	400	645	1030	1330	—	—	—	—	—
kW	247	398	636	821	—	—	—	—	—
kg/h (Series 393)	290	465	750	1130	1880	2850	4410	6970	8600
kW	179	287	463	698	1161	1759	2722	4276	5278
Dimensions and weights in mm and kg									
Length A	100	110	115	120	140	160	180	200	225
Length B	105	115	140	150	170	195	220	250	285
Overall height H (Series 392)	445	535	585	695	—	—	—	—	—
Overall height H (Series 393)	445	465	580	600	710	735	860	980	1045
Seat diameter do	23,5	30,0	37,9	46,5	60,0	74,0	92,0	123	148
Weight kg (Series 392)	17	23	35	44	—	—	—	—	—
Weight kg (Series 393)	12	15	24	26	41	45	72	100	133
Clearance x	90	90	150	150	150	150	200	200	210

The dimensions and weights quoted are non-binding. Subject to design modifications. Installation instructions as per series 390/391.