



# Steam Traps and Monitoring Equipment

The right choice in every case



Engineering steam performance

# Best equipped with GESTRA steam traps

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### Steam traps have to work perfectly

In industry, one of steam's most important tasks is to provide thermal energy through condensation, and to heat a variety of media in heat exchangers. During this process, the steam flows through pipes and cools down more and more en route, so that condensate forms here, too.

Condensate prevents the optimum transfer of heat, but also, in particular, leads to erosion and water hammer. To enable steam systems to work reliably and efficiently, steam traps discharge any condensate that builds up, while retaining the valuable steam to the greatest possible extent. How well steam traps perform has a considerable influence on:

- **the system's reliability**
- **availability and**
- **cost efficiency.**

To achieve the very best results here, it needs valves that satisfy all the different requirements in every respect.

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### Flexible for different requirements

To heat water using steam, at times large quantities of condensate must be discharged as quickly as possible, so that drainage without banking-up can be guaranteed even if load and pressure are fluctuating.

If turbines or pipes with superheated steam are drained, only low condensate flowrates occur during operation. More condensate only forms on start-up. Here, the demand is for robustness, maintenance friendliness, durability and a regulator that closes reliably even at pressures above 200 barg.

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### This is what sets GESTRA steam traps apart

For steam system operators, the cost of energy production is a key driver. Durable steam traps that work without loss of steam help to keep these costs as low as possible. What's more, they ensure reliable and safe operation.

For decades now, GESTRA steam traps have epitomised optimum energy efficiency and absolute reliability. They satisfy the most demanding quality requirements, and their compact and modular design makes them impressive in the field. In addition, they are very maintenance-friendly and extremely easy and convenient to use.

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### Best quality for every need

At GESTRA you will find an extensive selection of functional types and versions to suit every requirement. In addition, we offer systems that enable you to reliably test and monitor your steam and condensate systems.

## How do I get my optimum steam trap?

We find the optimum steam trap for you, with the best efficiency. To achieve this, what matters most is keeping an eye on the decisive factors:

1. Requirements specific to your application
  - Saturated steam pipe
  - Superheated steam pipe
  - Steam-regulated heat exchanger
  - Unregulated heat exchanger or heating coil
  - Steam tracing where undercooling is required
  - Turbine drainage
2. System and equipment requirements
  - Pressure rating
  - Type of end connection, e.g. EN flange or socket weld end
  - Material of construction
3. Operating parameters
  - Pressure upstream from steam trap
  - Temperature upstream from steam trap
  - Pressure downstream from steam trap
  - Condensate flowrate
  - Start-up and shut-down cycles
  - Load changes
4. Additional options required
  - Monitoring
  - Dirt strainer
  - Drain valve and manual air vent
  - Manual vent valve
  - Bypass



### Online design software

We are happy to advise you on selecting, sizing and configuring the right steam trap for you. But first you can also use our CAESar design software. This shows you the best way to your perfect steam trap.

You can find the easy-to-use CAESar steam trap selection range on our homepage, [www.gestra.com](http://www.gestra.com), under “Service & Support”.



## TS 36 with BK 36A-7 add-on in detail:

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### A winning combination: compact, robust steam trap with no loss of steam, together with all stop valves and test and drainage function

The TrapStation TS 36 encompasses the universal connector, two stop valves – which are accessibly positioned and clearly colour-coded to ensure easy and safe operation – a drainage valve with dirt strainer for removing corrosion products, and a test valve. A straightforward function test can be performed in no time, and the steam trap can be easily cleaned. This considerably extends its service life.

Also included is a BK 36A-7 thermostatic bimetallic steam trap with corrosion-resistant, water hammer-resistant Thermovit regulator for drainage with virtually no banking-up, and automatic air venting.

#### Key data

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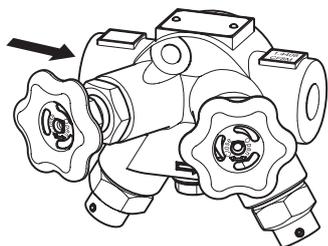
- DN 15–25 (NPS ½"–1")
- CI 300
- Max. differential pressure: 32 bar

#### Options

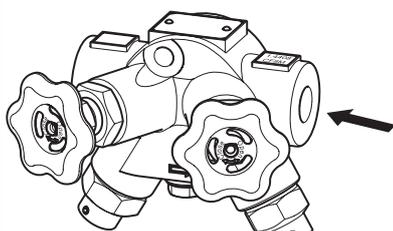
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- Screwed or socket weld end connection
- Direction of flow left to right or right to left
- Optionally available without test and blow-down valve
- Accessory: Special extraction tool for replacing the stuffing box

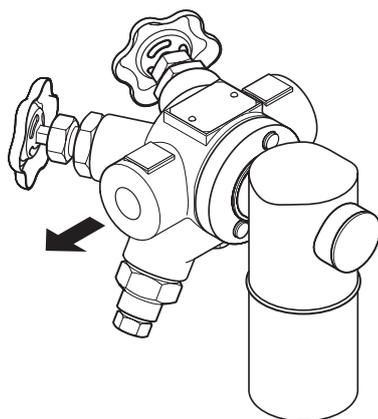




TS 36-1



TS 36-2



TS 36 with IB 16A-7

The compact-type Trap Station TS 36 features additional test and shut-off functions and is a more convenient alternative to the simpler connector units UC 36 and UCY 36.

When installed with a suitable steam trap with UNIVERSAL (Swivel) connector (sold separately) the equipment can discharge condensate from steam systems.

The two in-built **isolating valves** are designed to completely shut off the condensate inlet and outlet independently from each other.

The integral **blowdown valve** provides a means for cleaning the strainer and the **test valve** enables the steam trap operation to be checked.

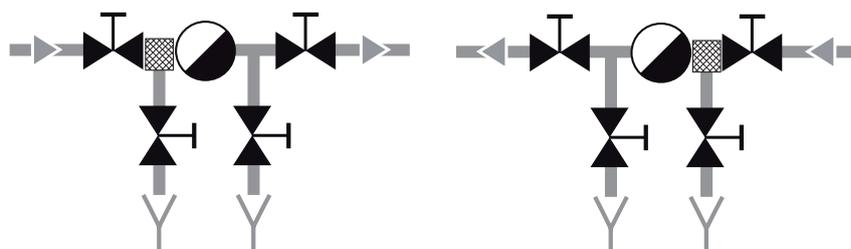
The steam traps can be easily attached to and removed from the TS 36 by means of only two screws.

**The following GESTRA connector steam traps can be used:**

- Bimetallic steam trap BK 36A/7
- Steam trap with membrane capsule MK 36A/71
- Steam trap with membrane capsule MK 36A/72
- Thermodynamic steam trap DK 36A/7
- Inverted bucket steam trap IB 16A-7

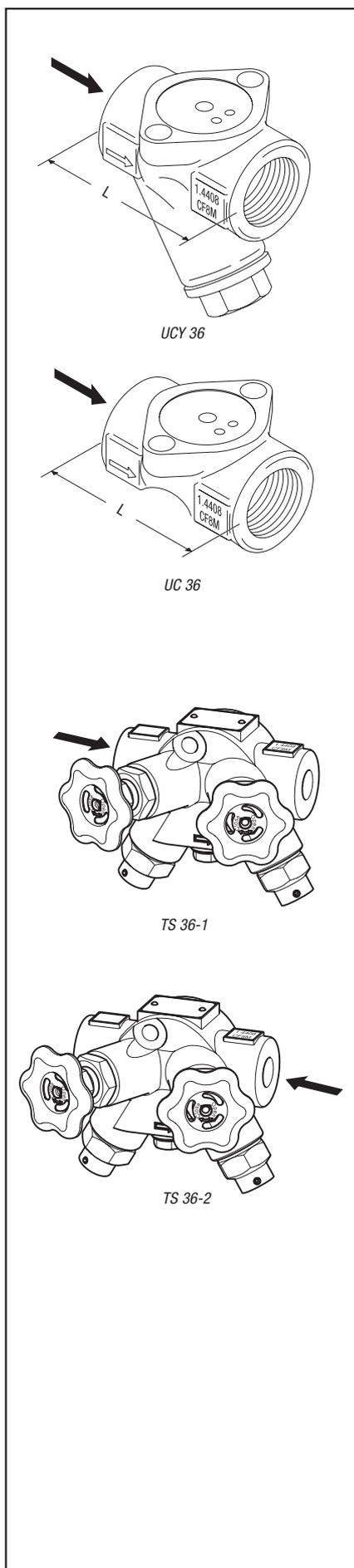
Non-GESTRA swivel connector steam traps can also be fitted to the TS 36.

**Schematic diagram**



TS 36-1  
Flow direction from left to right

TS36-2  
Flow direction from right to left



### Features

- Body / internals made from corrosion-resistant stainless steels
- UNIVERSAL (Swivel) connector for steam trap
- Connector unit can remain in pipeline during maintenance work
- Steam trap unit is easy to install and remove by means of only two screws

### Application

Type	
UC 36	Universal connector
UCY 36	Universal connector with integrated strainer
TS 36-1	Compact-type connector unit with 2 isolating valves, test valve and strainer with blow-down valve. Coloured handwheels indicate inlet and outlet and assist in the correct installation. Flow direction from left to right.
TS 36-2	Compact-type connector unit with 2 isolating valves, test valve and strainer with blow-down valve. Coloured handwheels indicate inlet and outlet and assist in the correct installation. Flow direction from right to left.

### Pressure/Temperature Ratings

Type UC 36, UCY 36, TS 36	ASME B 16.5 Class 300 (PN 50) Material Group 2.2)				
p (pressure) [bar]	49.6	42.2	35.7	31.6	29.4
T (temperature) [°C]	38	100	200	300	400
PMO (max. service pressure)	33.7 bar at 242 °C				

Based on ASME B 16.5, ASME B 16.34

### Available Connections and Lengths

Type	Connection	Length L		
		1/2"	3/4"	1"
UC 36, UCY 36	Screwed sockets NPT Screwed sockets G	75	75	75
TS 36-1, TS 36-2	Socket-weld ends	120	120	on request

# GESTRA steam traps at a glance

Operating principle

Type	Materials, body, cover	Operating principle				
		Bimetallic BK	Membrane MK	Ball float UNA	Thermodynamic DK	Inverted bucket IB
AK 45	1.0460/SA105					
BK 15	1.0460/SA105	x				
BK 27N	1.5415	x				
BK 28	1.5415	x				
BK 28-ASME	1.7335/SA182-F12-2	x				
BK 29	1.7335/SA182-F12-2	x				
BK 29-ASME	1.7335/SA182-F12-2	x				
BK 36A-7	1.4408/SA351-CF8M	x				
BK 37	1.5415	x				
BK 37-ASME	A182-F12	x				
BK 45	1.0460/SA105	x				
BK 45-LT	SA350-LF2	x				
BK 46	1.5415	x				
BK 212	1.7383/A182-F22-3	x				
BK 212-F91	1.4903/SA182-F91	x				
BK 212-1.4901	1.4901 (F92)	x				
BK 212-ASME	1.7383/A182-F22-3	x				
DK 36A-7	1.4408/SA351-CF8M				x	
DK 45	1.0460/SA105				x	
DK 47-L	A743 CA40				x	
DK 47-H	A743 CA40				x	
DK 57-L	AISI 420				x	
DK 57-H	AISI 420				x	
GK 11	5.1301					
GK 21	5.1301					
IB 16A-7	SA240-304L					x
MK 20	5.4202		x			
MK 25/2	1.0460, 1.0619/SA105, SA216-WCB		x			
MK 25/2 S	1.0460, 1.0619/SA105, SA216-WCB		x			
MK 35/31	1.0460/SA105		x			
MK 35/32	1.0460/SA105		x			
MK 35/2S	1.0460/SA105		x			
MK 35/2S3	1.0460/SA105		x			
MK 36A-71	1.4408/SA351-CF8M		x			
MK 36A-72	1.4408/SA351-CF8M		x			
MK 36/51	1.4301/SA479-F304		x			
MK 36/52	1.4301/SA479-F304		x			
MK 45-1	1.0460/SA105		x			
MK 45-2	1.0460/SA105		x			
MK 45 A-1	1.4404/A182-F316L		x			
MK 45 A-2	1.4404/A182-F316L		x			
SMK 22	1.4435		x			
SMK 22-51	1.4404		x			
SMK 22-81	1.4404		x			
SMK 22-82	1.4404		x			
TK 23	5.1301					
TK 24	1.0619/SA216-WCB					
TS 36	1.4408/SA351-CF8M					
UBK 46	1.0460/SA105	x				
UC 36, UCY 36	1.4408/SA351-CF8M					
UNA 14	5.3103			x		
UNA 14P	5.3103			x		
UNA 16	1.0460, 1.0619/SA105, SA216-WCB			x		
UNA 16A	1.4404, 1.4408/A182-316L, SA351-CF8M			x		
UNA 25-PK	5.3103			x		
UNA 25-PS	5.3103			x		
UNA 27h	1.5419			x		
UNA 43	5.1301/A126-B			x		
UNA 45	1.0460, 5.3103/SA105, (A395)			x		
UNA 45 MAX	1.0460, 5.3103/SA105, (A395)			x		
UNA 46	1.0460, 1.0619/SA105, SA216-WCB			x		
UNA 46 MAX	1.0460, 1.0619/SA105, SA216-WCB			x		
UNA 46A	1.4404, 1.4408/A182-316L, SA351-CF8M			x		
UNA 46A MAX	1.4404, 1.4408/A182-316L, SA351-CF8M			x		
UNA 38	1.5415, 1.7357			x		
UNA 39	1.7335/SA182-F12			x		
UNA-Special Typ 62-B	1.0425			x		
UNA PN 25	1.0619/SA216-WCB			x		
UNA-Special PN 63	1.5419			x		

Nominal size											Nominal pressure		Max. permitted differential pressure		Hot condensate	
8 1/4"	10 3/8"	15 1/2"	20 3/4"	25 1"	40 1 1/2"	50 2"	65 2 1/2"	80 3"	100 4"	150 6"	PN	Cl	ΔPMX [bar]	ΔPMX [psi]	[kg/h]	[lb/h]
		X	X	X							40					
					X	X					40	300	22	320	2,550	5,620
					X	X					63		45	650	1,500	3,310
		X	X	X							100		85	1,230	910	2,010
		X	X	X								600	85	1,230	910	2,010
		X	X	X							160		110	1,600	980	2,160
		X	X	X								900	110	1,600	980	2,160
												300	32	465	300	660
		X	X	X							100		45	650	570	1,260
		X	X	X								600	45	650	570	1,260
		X	X	X							40	300	22	320	510	1,120
		X	X	X							40	300	22	320	510	1,120
		X	X	X							40	300	32	465	550	1,210
		X	X	X							630		275	3,988	300	660
		X	X	X							775	2500	275	3,988	300	660
											800		275	3,988	300	660
		X	X	X								2500	275	3,988	300	660
												300	32	465	400	880
		X	X	X							40	300	32	465	510	1,120
		X	X								63	600	42	610	330	730
			X	X							63	600	42	610	2,000	4,410
		X	X								63	600	42	610	550	1,210
			X	X							63	600	42	610	2,100	4,630
							X	X	X	X	16		6	87	380,000	837,740
						X					16		6	87	18,000	39,680
												300	27.6	400	750	1,650
		X	X								6		4.5	65	1,050	2,310
					X	X					40		32	465	5,500	12,130
					X	X					40		32	465	8,200	18,080
	X	X									25		21	305	360	790
	X	X									25		21	305	790	1,740
				X							40		32	465	1,800	3,970
				X							40		32	465	3,100	6,830
												300	32	465	300	660
												300	32	465	450	990
X	X	X	X									300	32	465	500	1,100
X	X	X	X									300	32	465	830	1,830
		X	X	X							40	300	32	465	610	1,340
		X	X	X							40	300	32	465	1,100	2,430
		X	X	X							40	300	32	465	610	1,340
		X	X	X							40	300	32	465	1,100	2,430
	X	X	X	X							10		6	87	270	600
	X	X	X	X							10		6	87	270	600
	X	X	X	X							10		6	87	270	600
				X							10		6	87	400	880
						X	X	X	X		16		10	145	125,000	275,570
						X	X	X	X		25		14	203	140,000	308,640
		X	X	X								300				
		X	X	X							40	300	32	465	170	370
		X	X	X								300				
		X	X	X							25		13	188	650	1,430
		X	X	X							25		16	232	1,000	2,200
		X	X	X							40	300	22	320	650	1,430
		X	X	X							40	300	22	320	650	1,430
					X						40		13	188	3,200	7,050
					X						40		13	188	610	1,340
				X	X	X					63		45	650	4,800	10,580
		X	X	X	X	X	X	X	X		16	125	13	188	26,000	57,320
					X	X	X				40	300	32	465	6,050	13,340
					X	X	X				40	300	32	465	15,500	34,170
		X	X	X	X	X	X	X	X	X	40	300	32	465	26,000	57,320
					X	X	X				40	300	32	465	15,500	34,170
		X	X	X	X	X	X				40	300	32	465	6,050	13,340
					X	X	X				40	300	32	465	15,500	34,170
		X	X	X	X	X					40	300	32	465	6,050	13,340
		X	X	X	X	X					40	300	32	465	15,500	34,170
		X	X	X	X	X					100		80	1,160	5,200	11,460
		X		X		X					160	900	140	2,030	6,000	13,230
									X		16		16	232	90,000	198,410
									X		25		22	320	66,000	145,500
							X	X	X		63		45	650	32,000	70,550



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