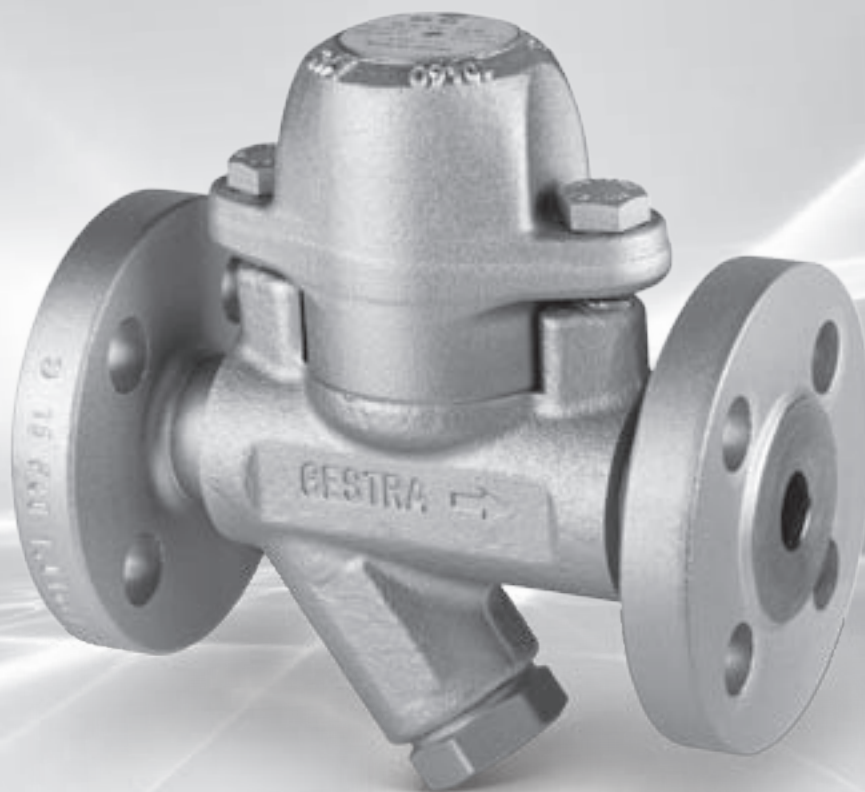




Steam Traps and Monitoring Equipment

The right choice in every case



Engineering steam performance

Best equipped with GESTRA steam traps

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.

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.

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.

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:

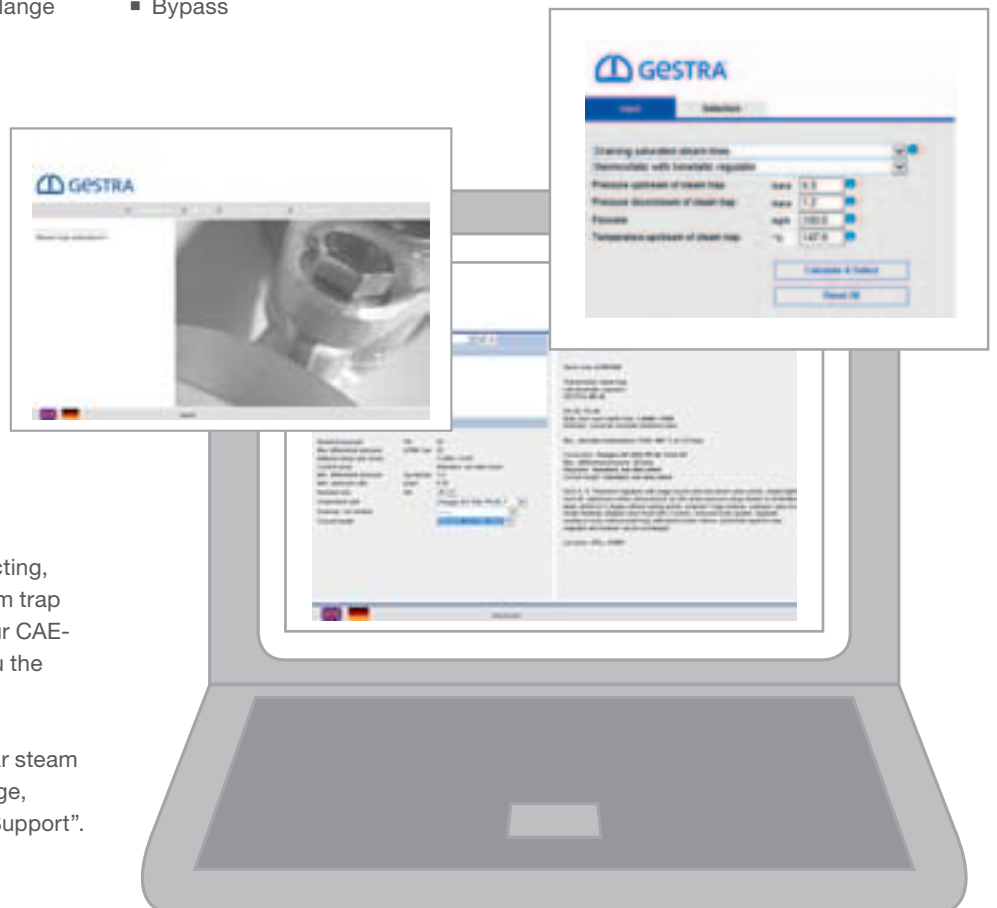
1. Requirements specific to your application
 - Saturated steam pipe
 - Superheated steam pipe
 - Steam-regulated heat exchanger
 - Unregulated heat exchanger or heating coil
 - Steam tracing where undercooling is required
 - Turbine drainage
2. System and equipment requirements
 - Pressure rating
 - 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, under “Service & Support”.



Ball float steam traps UNA series

Steam traps with ball float for removing condensate from steam, cold condensate or distillates without banking-up

The traps with the tried and tested rolling ball seal work with exceptionally low friction and therefore have very low actuating forces. They are durable and guarantee maximum tightness.

Use

Versatile steam trap for virtually all requirements.

Especially recommended for the drainage of:

- Steam-regulated heat exchangers
- Systems with a large condensate flowrate
- Steam headers
- Steam driers, cyclone separators
- Systems with very low operating pressures
- Systems with very small differential pressures
- Systems with extremely variable operating conditions
- Vacuum systems
- Float traps with integral air vents can be used as air traps, gas traps and liquid drainers
- Drying cylinders

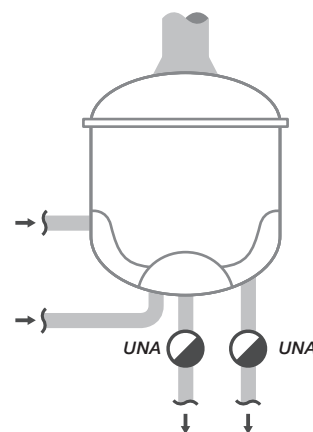
The series is also ideal for use as a discharge regulator for flash tanks and feedwater tanks.

Advantages

- Reliable function regardless of back pressure and condensate temperature
- No loss of steam due to the formation of a water seal
- Maximum tightness and durability as well as excellent control characteristics, as the sealing unit of the regulator has a rolling ball or segmented ball
- Immediate response level control without automatic venting – Simplex version
- With automatic, fast-acting venting for steam systems – Duplex version
- Especially insensitive to dirt
- Inner parts of corrosion-resistant stainless steel
- Fully operational even when back pressure is nearly 100% of upstream pressure
- Can be serviced without removing the body

Installation example

Brewing pan



UNA 14



UNA 45, 46 with electrode and manual vent valve



UNA 27



UNA 43/46 DN 80-150



UNA 38



UNA 39



UNA Special PN 63

UNA 45/46 in detail:

GESTRA UNA 4 ball float steam traps cannot fail to impress, with their simple, modular design that makes them perfectly flexible in use.

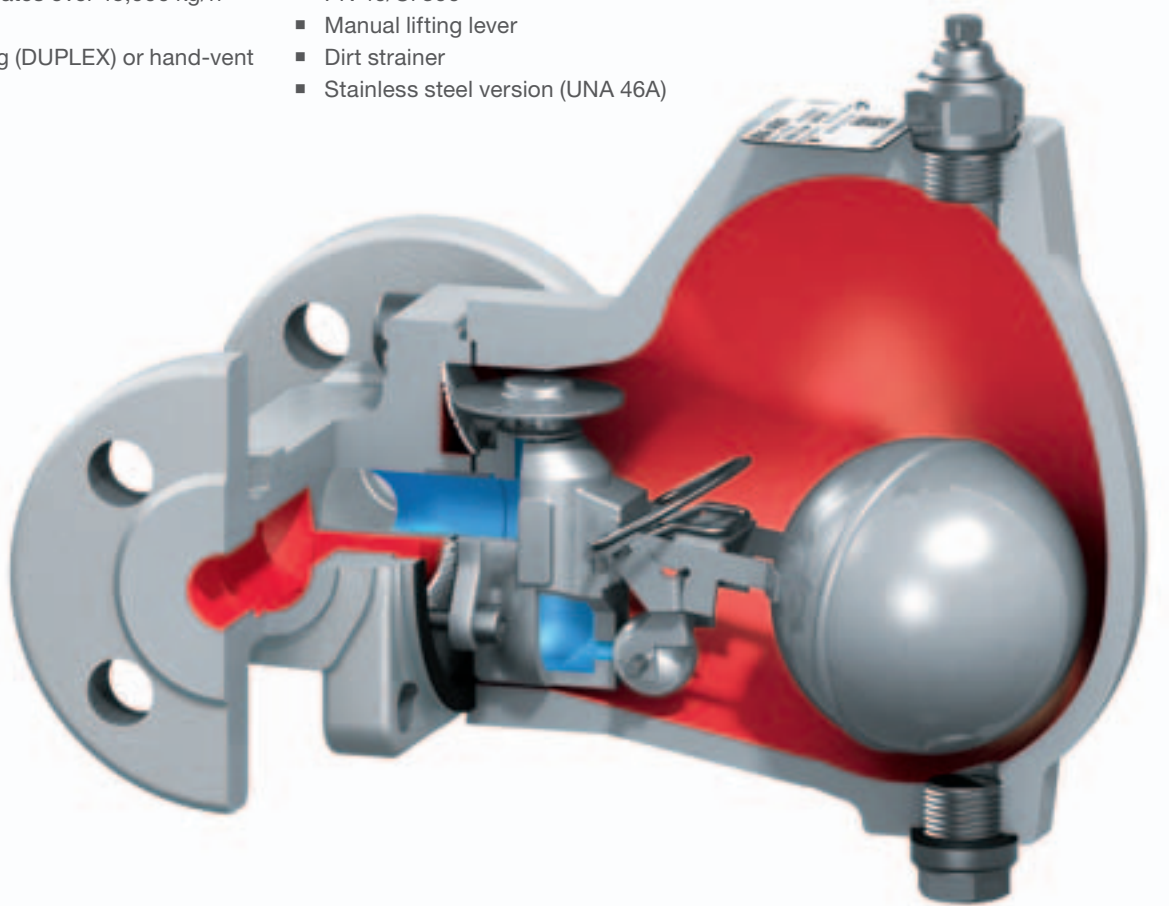
The modular design means that the steam trap's direction of flow can be varied. With a total of 33 different options for installation in the pipe (11 types of connection for each direction of flow – vertical, horizontal to the left and horizontal to the right), these traps fit every pipe. The materials and design of the forged body conform to EN and ASME standards.

Key data

- DN 15–65 (NPS ½"–2½")
- PN 40/CI 300
- Max. differential pressure: 32 bar
- Rolling ball regulator with various pressure capabilities AO2–AO32 (DN 15–65)
- MAX regulator (DN 40–65) for large condensate flowrates over 15,000 kg/h (hot condensate)
- Automatic venting (DUPLEX) or hand-vent valve (SIMPLEX)

Options

- Direction of flow vertical, horizontal to the left or horizontal to the right
- Inner bypass, adjustable from outside
- Sightglass (UNA 45) PN 16/CI 150
- Connection for monitoring sensor
- Cover with monitoring sensor (UNA 45) PN 40/CI 300
- Manual lifting lever
- Dirt strainer
- Stainless steel version (UNA 46A)



Pumping trap **UNA 25-PK**

Pumping trap **UNA 25-PS**

Valves that discharge and lift condensate

Ball-float steam traps with pump function – UNA 25-PK:

These units function primarily as steam traps. The integrated, automated pump function ensures that condensate is discharged even under reduced steam pressure or high back pressure. The condensate is then pumped out of the body with the aid of motive steam.

Pump trap with ball float – UNA 25-PS:

The automated pump function ensures that the return of condensate is always based on demand. The condensate is pumped out of the body with the aid of motive steam.

Use

UNA 25-PK:

- Regulated heat exchangers, special plate-type heat exchangers with major load fluctuations during operation
- Drainage of vacuum systems
- Also suitable for returning condensate

UNA 25-PS:

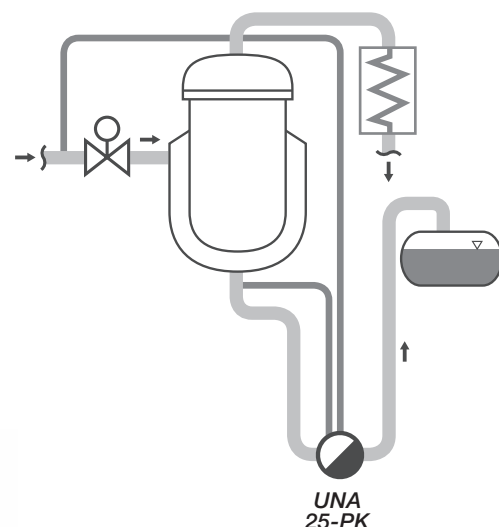
- For returning condensate, e.g. as an alternative to pump-driven return
- Drainage of vacuum systems

Advantages

- Integrated non-return valve in the inlet and outlet area
- Body with straight through design
- Small size
- Standard flange length
- Float-actuated, compact switchover unit for controlling booster steam and venting
- Optimised performance with versions for 6 bar or 13 bar
- Inner parts of corrosion-resistant stainless steel
- Compact regulator unit

Installation example

Distilling flask



UNA 25-PK, UNA 25-PS

UNA 25-PK, UNA 25-PS

UNA 25-PK in detail:

The use of compact UNA 25-PK units guarantees drainage without banking-up, and a leakproof seal in all operating conditions

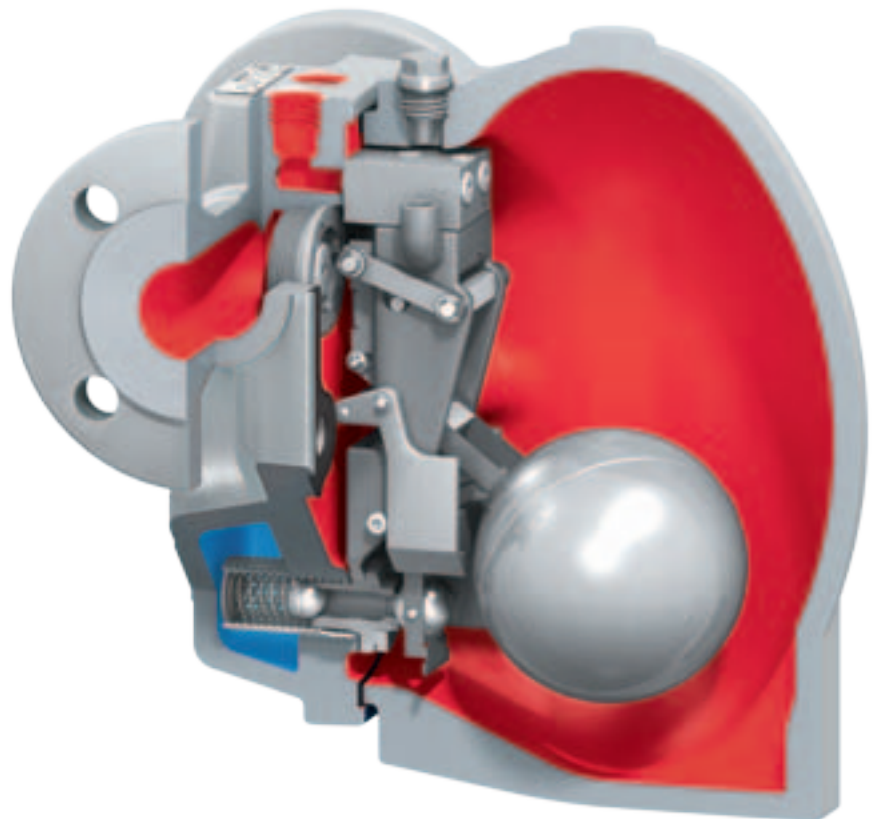
In addition to the tried-and-tested rolling ball regulator, a mechanism is incorporated that independently conveys higher pressure steam into the body when the upstream pressure is low. With this motive steam, the condensate is actively fed into the condensate system. When the pressure in the heat exchanger is sufficiently high, the rolling ball regulator works like a conventional ball-float steam trap.

Key data

- DN 40 (NPS 1½")
- PN 40/Cl 150
- Max. differential pressure: 6 or 13 bar
- Compact regulator unit, contains control block and switchover unit
- Modular control block
- Separate, wear-resistant connections for motive steam and venting
- Orifice with rolling ball
- Integrated non-return valve in inlet and outlet area

Options

- Different versions for 6 bar or 13 bar operating pressure
- EN flange, ASME flange or screwed end connection



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					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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