





# SECURE THE ADVANTAGES!

Effective synergies and new possibilities abound when you combine the IBEDA product lines of Gas Safety Engineering, Flame Spraying, Gas Manifold Systems and Autogenous Engineering.

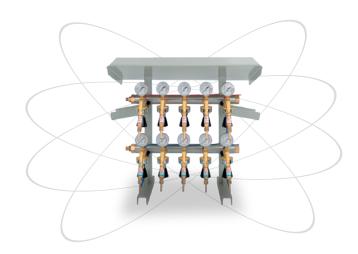
# That means: flexible, affordable, certified and safe products and production solutions from a single supplier, as well as conservation of valuable natural resources.

We will never compromise on safety. We are committed to the ongoing development of new products as well as continuing to improve our existing products. We are able to provide well-engineered and reliable safety solutions for every industrial application, all with certification!

GAS SAFETY ENGINEERING







### THE IBEDA QUICK-ACTION COUPLING WITH TOP-HAT SEALING

IBEDA quick connectors make setting up and taking down equipment faster and easier. They automatically cut off gas flow when disconnected, have all brass construction with durable stainless coupling pins and meet ISO 7289, EN 561 standards. The couplings have BAM approval and are 100% tested. IBEDA couplings are available in three different gas connections for fuel gas, oxygen and inert gas. For added safety they come with gas specific connections and do not allow users to mix gas types. The quick connectors are also available integrated into flashback arrestors. Additionally, IBEDA offers quick couplings with larger diameters for higher flow rates.



# AUTOGENOUS ENGINEERING

CERTIFIED SAFETY - WORLDWIDE!

# FLAME SPRAYING



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### SAFETY FIRST

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# CERTIFIED SAFETY

### YOU CAN RELY ON .

IBEDA gas safety devices protect the lives of your workers. With the use of IBEDA safety devices, you meet the important legal requirements for using the proper equipment when hand-ling gases.

Contrary to many other manufacturers IBEDA guarantees a 100% function test of its products before leaving the factory.



### AT A GLANCE

- IBEDA safety devices and quick-action couplings fulfill the requirements of international standards, such as EN 730, EN 561, ISO 5175 and ISO 7289.
- IBEDA safety devices and quick-action couplings are design-type tested.
- IBEDA safety devices and quick-action couplings have met worldwide certification standards.
- IBEDA safety devices and quick-action couplings are subject to production monitoring by neutral testing institutes.

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- IBEDA safety devices and quick-action couplings are permanently tested by 3rd party testing institutes.
- IBEDA safety devices and quick-action couplings are submitted to a 100% function test.
- IBEDA safety devices are manufactured and examined for quality according to Quality Management System EN ISO 9001 and these processes are documented and logged.



# IBEDA SAFETY DEVICES

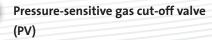
### HELP PREVENT ACCIDENTS AND EQUIPMENT DAMAGE

#### **IBEDA SAFETY DEVICES HELP PREVENT:**

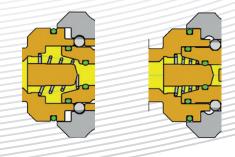
- Further gas flow in the case of pressure shocks
- The entry of air or oxygen into the distribution line or single cylinders

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- Flashback which is the rapid propagation of flame down the hose
- Further gas flow in the case of burnback



- The pressure-sensitive cut-off valve stops the gas flow in the event of pressure shocks.
- The safety device can be manually reset to continue working



#### Gas non-return valve (NV)

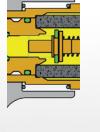
- The gas non-return valve prevents dangerous gas mixtures
- The gas non-return valve ensures the gas only flowing in the intended flow direction

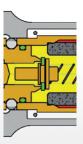
#### Flame arrestor (FA)

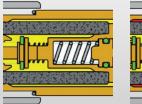
- The flame arrestor cools the flame down to below the ignition temparature.
- The flame arrestors prevents flashback

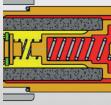
#### Thermal cut-off valve (TV)

- The thermal cut-off valve prevents excessive temperatures
- The thermal cut-off valve closes automatically at a certain temperature and cuts off the gas flow











# IBEDA TECHNIQUE

OVERVIEW

### TECHNICAL DATA

Types	SR	SRT	DG	DGN	DGNDK	DS1000	DEMAX 5N	DG91	DG91N	DS2000	DG91NH0,5	SIMAX 3N	SIMAX 5N	SIMAX 8N	GRS91	GT	Ħ	gg	GDK	DKST	DKSG	DGU	DGNU	DG91UA
Approval																								
EN 730-1	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	x
BAM	x	х	х	х	x	х	x	х	x	x	х	х	х	х	x	х	х	х	х	х	х	х	х	×
UL	x	х	х	х	x		х	х	х	x		х	х	х		х	х	х			х			х
SABS	x	x	х	х	x	х	х	х	х	х		х	х	х		х	x	х		х	х			×
GOST			х	х									х	х										

(EN730-1)																								
NV (Gas non-return valve)	х	х	х	x	x	x	х	х	x	х	х	х	х	x	х	х	х	х	х	x	x	x	х	х
FA (Flame arrestor)	х	х	х	x	x	х	х	х	x	х	х	x	х	х	х	х	х	х	х	x	x	x	х	x
TV (Thermal cut-off valve)		х		x	x	x	х		x	х	х	х	х	x									х	
PV (Pressure sensitive cut-off valve)						x				х														
DF (Dust filter)		х	х	x	x	х	х	х	х	х	х	х	х	х	х	х	х	х	х	x	x	x	х	х

Coupling (EN561)														
GCOV (Gas cut-off valve)			х								х	х		
QAC (Quick-action coupling)			х								х	х		

Technical data																								
Diameter (mm)	19,5	19,5	22	22	22	35	65	32	32	46	32	88	88	122	32	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	32
Length (mm)	60	60	84	84	116	110	111	107	107	123	107	165	165	174	107	69	75	56	85	85	74	69	69	128
Weight of brass product (g)	91	93	147	153	213	252	1269	348	375	491	375	3300	3890	8230	348	73	60	82	89	129	128	110	112	437
Brass	x	х	х	x	x	х	х	х	х	x	x	x	х	х	х	х	х	х	х	х	х	х	х	×
Stainless steel				х			х		х		х													

Working pressure (bar)																								
Acetylene	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	2,5	1,5	1,5	1,5		1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5
Propane/Butane	4,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	10,0	5,0	5,0	5,0	0,1	4,0	4,0	4,0	4,0	4,0	4,0	5,0	5,0	5,0
Natural gas	4,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	10,0	5,0	5,0	5,0	0,1	4,0	4,0	4,0	4,0	4,0	4,0	5,0	5,0	5,0
Hydrogen	4,0	3,5	3,5	3,5	3,5	3,5	3,0	4,0	4,0	4,0	10,0	4,0	4,0	4,0		4,0	4,0	4,0	4,0	4,0	4,0	2,5	3,0	4,0
Oxygen	25	25	25	25	20	15	25	25	25	15	25	25	25	25	25	20	20	25	20	20	20	25	25	25
Compressed air	25	25	25	25	20	15	25	25	25	15	25	25	25	25	25	20	20	25	20	20	20	25	25	25



### APPLICATION

Types	SR	SRT	DG	DGN	DGNDK	DS1000	DEMAX 5N	DG91	DG91N	DS2000	DG91NH0,5	SIMAX 3N	SIMAX 5N	SIMAX 8N	GRS91	GT	Щ	DD	GDK	DKST	DKSG	DGU	DGNU	DG91UA
Application																								
Welding 0,5-14 mm																								
Welding 0,5-30 mm																								
Heating 0,5-14 mm																								
Heating 0,5-30 mm																								
Heating 30-100 mm																								
Heating > 100 mm																								
Flame cutting up to 60 mm																								
Flame cutting 3-200 mm																								
Flame cutting 50-700 mm																								
Flame cutting > 700 mm																								
Flame scarfing 50-200 mm																								
Flame scarfing 200-500 mm																								
Flame scarfing - 5 flames																								
Brazing consumption 4000 l/h																								
Brazing consumption 12000 l/h																								
Brazing consumption > 12000 l/h																								
Flame spraying																								

For cyinder regulators or tapping points

For torches/cutting machines

	Conversion	factor	Air flow rate for DIN	couplings in Nm <sup>3</sup> /h
Air	1,00	1,0 bar = 0,1 Mpa		DKT; DKG; DKD,
Acetylene	1,20	1,0 bar = 100 kPa	Inlet pressure in Mpa (bar)	DKT-W, DKG-W; DKD-W
Butane	0,86	1,0 bar = 14,28 Psi	0,03 (0,3)	8,5
latural gas	1,25		0,06 (0,6)	13,0
lethane	1,40	1,0 m = 1,31 cu.yd	0,09 (0,9)	16,3
opane	0,90	1,0 m = 35,32 cu.ft	0,12 (1,2)	19,0
xygen	0,95		0,15 (1,5)	21,5
ydrogen	2,50		0,25 (2,5)	30,0
thene	1,02		1,0 (10,0)	105,0
			2,0 (20,0)	160,0

	Further data
Porosity of the sintered element	3 µm for standard applications
Opening pressure of the gas non-return valve	40 + 20 mbar
Melting point of the thermal cut-off valve	130 + 20 °C
Triggering pressure of the pressure sensitive cut-off valve	< 1200 mbar

### SAFETY DEVICES

#### (EN 730 AND ISO 5175) FOR CYLINDER REGULATORS AND TAPPING POINTS

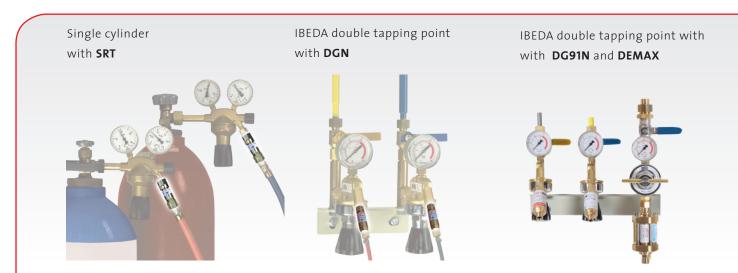


TYPE SRT · DGN · DG91N · DEMAX5N DGNDK WITH D4 The ideal protection for all applications. Type SRT for smaller soldering, welding and cutting work with single cylinders. Type DGN for all standard protections in welding. DEMAX5N, a parallel connection of 5 DGN for high flow rates on pipe systems. All types are also available without thermal cut-off valve (SR, DG, DG91, DEMAX5).

The DGNDK combines maximum safety which is proven millions of times with the advantages of worldwide standardised couplings within the welding industry.

### **HIGHLIGHTS**

- Dust filter promotes long life
- Gas non-return valve prevents dangerous gas mixtures
- Flame arrestor prevents flashback
- Thermal cut-off valve prevents excessive temperatures



SRT the new IBEDA product within the line of safety devices is especially designed for single cylinder installations with smaller flow rates and offers an excellent price/performance ratio.

- Welding up to 14 mm
- Flame cutting up to 60 mm
- Heating up to 14 mm

The standard safety devices for industries and small enterprises. The type DGN covers the most applications and can be used on tapping points as well as on single cylinders. This safety device can be used for:

- Welding up to 30 mm
- Flame cutting up to 60 mm
- Heating up to 50 mm

Always there, where high flow rates with low pressure drops are necessary for an on-going production process. The high flow rates guarantee a long product life with the highest level of safety.

Depending on type and design, they are applicable for:

- Welding up to 30 mm
- Flame cutting up to 500 mm
- Heating > 100 mm



### (EN 730 AND ISO 5175) FOR CYLINDER REGULATORS AND TAPPING POINTS WITH PRESSURE SENSITIVE GAS CUT-OFF



TYPE DS1000 · DS2000 The safety device types DS1000 and DS2000 offers additional protection from pressure shocks which arise, i.e. from flashbacks causing the gas flow to be interrupted. The green collar shows free flow and is covered by the reset collar. In order to continue working the user has to look for the cause of the flashback. Once the problem is corrected, the safety device is reset and work can be continued.

### **HIGHLIGHTS**

- Dust filter promotes long life
- Gas non-return valve prevents dangerous gas mixtures
- Flame arrestor prevents flashback
- Thermal cut-off valve prevents excessive temperatures
- Pressure sensitive gas cut-off system stops gas flow



Single cylinder with **DS1000** 

The DS1000 offers highest safety and a long product life. This safety device can be used for:

- Welding up to 30 mm
- Flame cutting up to 200 mm
- Heating up to 50 mm

IBEDA double tapping point with **DS2000** 



Highest safety level combined with high capacity offers long product life and protection of investment in industrial use.

- Welding up to 30 mm
- Flame cutting up to 500 mm
- Heating > 100 mm

Gas-flow interrupted (Stop)

### SAFETY DEVICES

### (EN 730 AND ISO 5175) FOR TORCHES / CUTTING MACHINES



The IBEDA safety devices type GG, GT, TT, GG-SS, DG91UA offer safety wherever danger occurs. Directly installed on torches these safety devices avoid a gas mixture of fuel gas and oxygen. The built-in flame arrestor extinguishes flashbacks and protects the gas non-return valve, so that it still works after flashbacks.

The GG-SS prevents the "chimney effect" with cutting oxygen when pre-heating during metal piercing processes.

### **HIGHLIGHTS**

- Dust filter promotes long life
- Gas non-return valve prevents dangerous gas mixtures
- Flame arrestor prevents flashback
- Protection of special burners by direct installation at the inlet



Either at the flame cutting machine or at the burner the compact design offers the possibility for installation in the smallest possible space. The safety device can be used for:

- Welding up to 30 mm
- Flame cutting up to 200 mm
- Heating up to 50 mm
- Weight 66 g
- Diameter 19,5mm
- Length 56 mm

Short and light by design, the GT offers the highest possible safety and comfort for the user. The new pin design guarantees safe connection and hose protection.

- The safety device can be used for: • Welding up to 30 mm
- Flame cutting up to 200 mm
- Heating up to 50 mm
- Weight 84 g
- Diameter 19,5 mm
- Length 73 mm

Always there where high flow rates are needed, the DG91UA with its offset connections can be installed even in places with little space.

The safety device can be used for:

- Welding up to 30 mm
- Flame cutting up to 500 mm
- Heating up to 100 mm



### (EN 730 AND ISO 5175) WITH HOSE COUPLINGS (EN 561 AND ISO 7289) FOR TORCHES



TYPE DKST AND D2 PIN · DKSG AND D1 PIN

The types DKST and DKSG combine maximum safety which is proven millions of times with the advantages of worldwide standardised couplings within the welding industry.

### **HIGHLIGHTS**

- Dust filter promotes long life
- Gas non-return valve prevents dangerous gas mixtures
- Flame arrestor prevents flashback
- Automatic gas cut-off when disconnecting
- Top-hat sealing
- Coded coupling pins to assist in avoiding the mix-up of the products for the different gas types (Fuel gas, Oxygen, Inert gas)

# Flame cutting machine with **DG91UA**



Flame cutting machine with **GG** 



Either at the flame cutting machine or at the burner, the compact design (model GG) or the offset connection (model DG91UA) offers the possibility for installation using the smallest possible space.

The safety devices can be used for

• Flame cutting up to 300mm (Model GG) and 700mm (Model DG91UA)

# HOSE COUPLINGS

### QUICK-ACTION COUPLINGS WITH TOP-HAT SEALING (EN 561 AND ISO 7289)



TYPE DKT AND D2 PIN · DKD AND D4 PIN DKG AND D1 PIN IBEDA hose couplings comply with European standard EN 561 and International standard ISO 7289 and are compatible worldwide. With an approved product range we prove our high quality standard.

### HIGHLIGHTS

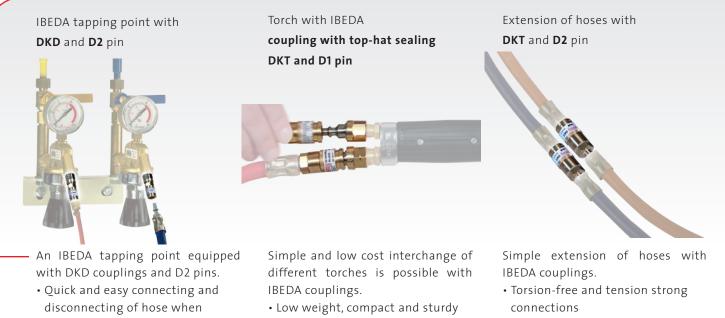
- Push system for easy connection minimized risk of an unintended disconnection
- integrated gas cut-off valve for shutting off the gas flow automatically when disconnected
- coupling system according to EN 561 / ISO 7289 worldwide compatibility
- stainless steel coupling pins offer long life
- optimized gas flow for small pressure loss
- coded coupling pins to assist in avoiding the mix-up of the products for the different gas types
- hose pins according to the latest standard EN 1256 and EN 560 allows for a solid and safe hose connection

Have a look at the new IBEDA video "Push vs. Pull System": www.ibeda.com/push-vs-pull.html

changing work place

tools

• Leakage-free connection without



• Quick vacuum test on injector

• Easy one-hand connection

• Due to construction an accidental disconnection and herewith interruption of work is avoided

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construction

burners



### FOR LARGE HOSE INNER DIAMETER OF 8 MM OR 12 MM



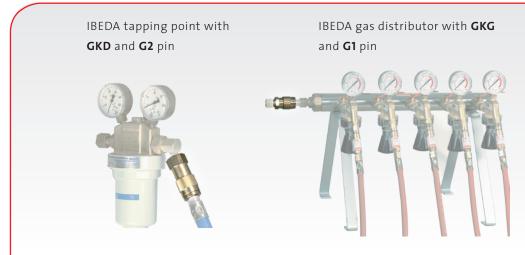
ТҮРЕ

**GKD AND G4 PIN GKG AND G1 PIN** 

Where large hoses have to be connected or disconnected quickly the IBEDA hose coupling of the series GK can be used. For fuel gases, oxygen and inert gases the IBEDA couplings are available in two sizes, ID 8 and ID 12. The connections are conform to EN 561 and are manufactured up to G1/2" connection. The coupling pins are available with or without gas cut-off.

### **HIGHLIGHTS**

- Automatic gas cut-off when disconnecting
- Double o-ring sealing
- Connections of pins and threads per EN 560
- Coded coupling pins to assist in avoiding the mix-up of the products for the different gas types
- Coupling pin with gas cut-off against loss of gas



Tapping point with coupling connection for large consumers which are used in changing mode.

- Quick connecting and disconnecting of hose when changing work place
- Leakage-free connection without tools

Connection of an IBEDA gas distributor. Changing work place is simple and fast.

- Strong design
- Long product life
- For heavy duty applications

### SAFETY DEVICES

### (EN 730 AND ISO 5175) STAINLESS STEEL, FOR PURE GAS APPLICATIONS



DGN-VA · DG91N-VA · DEMAX5N-VA · ESF-VA

In addition to the already established DG91N-VA, there are three new flashback arrestor types available which are suitable for pure gas applications: DEMAX5N-VA, DGN-VA and ESF-VA - providing maximum safety and functionality. With these products you are now even more flexible in areas that impose particularly high demands to the material and the environment.

### HIGHLIGHTS

- EN 730-1 / ISO 5175
- Gas non-return valve security against dangerous gas mixtures
- flame arrestor stops flashbacks
- dust filter protects the gas non-return valve
- temperature-sensitive cut-off valve
- seal material NBR/CR/FKM
- 100% tested

#### Pure gas application



Stainless steel safety devices are used in case of special requirements in hygiene of flame products or if it is demanded due to special environment, e.g. food, chemical or glass-industry.

- All components in stainless steel or brass nickel plated
- Sealing materials relating to requirements



### FOR MANIFOLDS (EN 730, EN 15615 AND ISO 5175), FOR CENTRAL GAS SUPPLY STATIONS (EN 14114) AND PIPE SYSTEMS.



IBEDA safety devices for manifolds and bundle batteries are manufactured to the latest standards. All safety elements of the safety devices (from the high pressure non-return valves or the automatic quick-action shut-off valves to the safety devices with multiple function) are design-type tested according to the latest standards (EN 730-1 and EN 15615) and are suitable for all ranges of capacity.

### **HIGHLIGHTS**

- No gas exchange between cylinder with different pressures
- No entry of air in high pressure hoses
- Safe cut-off of acetylene decomposition of all high pressure parts with flow up to 150 m<sup>3</sup>/hr
- Gas manifold equipped with all safety devices



IBEDA mobile gas manifold or stationary manifold.

- High pressure non-return valve for acetylene up to 25 bar, for technical gases and oxygen up to 300 bar
- Automatic quick action shut-off for cylinder and bundle batteries
- Safety device with multiple function depending on regulator capacity

Installation in tube system with **SIMAX8N** 



In large gas supply systems single tube system parts or building sections can be protected separately.

- Long-life span through highest capacity
- Simple in maintenance
  - Wide capacity range

### SAFETY DEVICES (EN 730 AND ISO 5175) FOR SINGLE CYLINDERS AND TAPPING POINTS VACUUM CONTROLLED, ATEX ANTI-LEAKAGE DEVICE (USED WITH LIQUID GAS), GASSTOP



TYPE ATEX AND GASSTOP

The worldwide unique vacuum safety device the IBEDA ATEX is a combination of a safety device and a anti leakage device for use in combination with injector burners. Due to the injector effect, the vacuum valve of the ATEX is opened, thus filling the pressureless hose created by the ATEX. Now the burner can be taken into operation. When using ATEX at a tapping point, no tapping point regulator is necessary.

With its double hose system the GASSTOP prevents leaking fuel gas from the hose system from even the smallest punctures.

### **HIGHLIGHTS**

- Both systems supervise fuel gas hoses
- Smallest leakages are recognized
- Used with propane/butane in ship yards and work under ground level is safe

Anti-leakage device with room heater

#### Double tapping point with ATEX and DS1000



As soon as a vacuum disappears the gas flow is interrupted. Cutting of the fuel gas hoses, even with hot slag or burning metal parts does not lead to ignition by the hose.

- The whole welding system is supervised
- Welding up to 30 mm
- Flame cutting up to 200 mm
- Heating > 100 mm

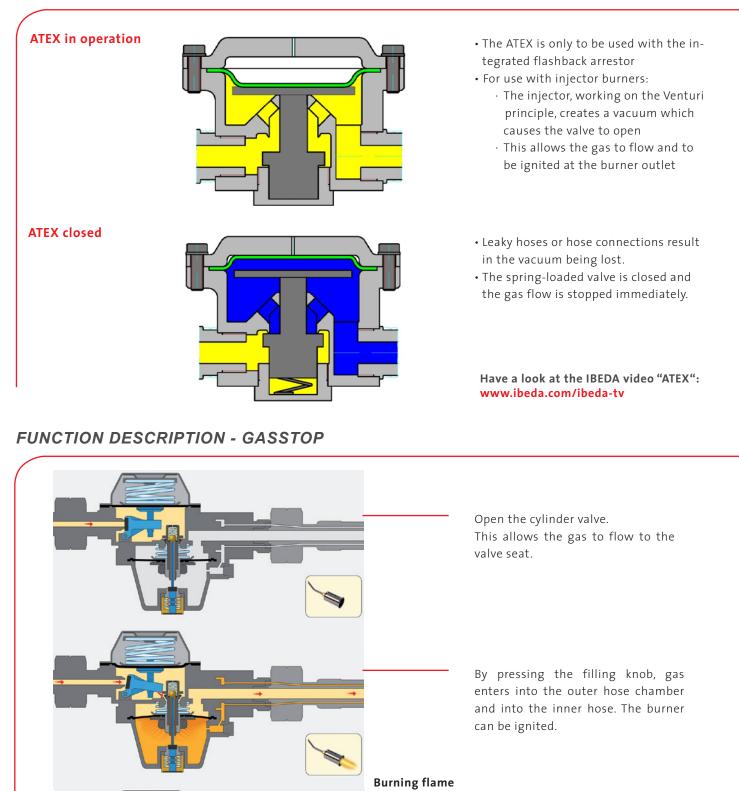


The primary use of the GASSTOP safety device, featuring a double hose and connection nipple is the protection of liquid gas users working under ground level or which are in continuous operation. With the double hose system in all applications uncontrollable leakage (micro leakage) and the accumulation of gas air mixtures are avoided.

- Working pressures from 0,5 to 4 bar adjustable
- Flow rate up to 15 kg/hr depending on hose length
- The safety function is effective over the entire capacity and pressure range



### FUNCTION DESCRIPTION - ATEX



In the case of defective devices, like a leaky hose or hose connection, the gas pressure escapes from the outer hose chamber and the gas supply is stopped automatically.

Extinguished flame

## FLASHBACK ARRESTOR TESTING EQUIPMENT

### FOR THE ANNUAL TESTING OF FLASHBACK ARRESTORS (EN 730 AND ISO 5175) TYPE PVGD

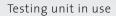


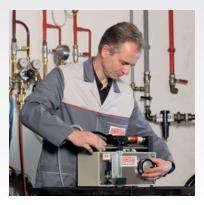
Safety devices have to be tested every year (depending on the country specific regulations). Without changing of the position, flow rate comparison checks can be made. Additionally, the function of the pressure-sensitive valve can be checked. This equipment allows flow rates to be measured as well as testing the function of the pressure sensitive valve (DS1000, DS2000).

### HIGHLIGHTS

- Only oil-free air or inert gas are to be used
- Compact design simplifies work on site
- Integrated spanner makes testing of all types possible
- Quick modulation makes test of different sizes simple

#### Have a look at the IBEDA video "PVGD": www.ibeda.com/ibeda-tv





Testing unit in use



Tests can easily be carried out nearly anywhere. All that is required is oil free air, some water and a little space. Adaptors are available to allow testing of other units.

## **TESTING LABORATORY**



### WITH AUTOMATIC OPERATION FOR EXCELLENCE IN PRODUCT SAFETY



AUTOMATIC TESTING EQUIPMENT FOR GAS RETURN, LEAKAGE AND FLASHBACK TEST

Every product manufactured by IBEDA is tested using our automatic testing equipment – when it leaves the factory we know it works.

### *HIGHLIGHTS*

- Monitored test and production process by third party institutes (BAM)
- Test of every safety device and coupling
- Tests under condition of international standards
- Logged and documented process according to ISO 9001

#### Functional test



Test of safety devices with pressure sensitive gas cut-off DS2000 against gas return, leakage and functioning of thermal cut-off valve.

- Control of allowed leakage of gas non-return valve of < 50 cm<sup>3</sup>/h
- Leakage test against atmosphere of < 8 cm<sup>3</sup>/h

#### Flashback test



Flashback test of safety devices following EN 730-1

- Test under extreme condition with max. pressure
- Supervised mixture of gas mixer and oxygen analizer

Logging



All tests are SPS and PC controlled and are logged following our ISO 9001 certified quality system.

- Automatic production control
- Controlled test procedures



### IBEDA Sicherheitsgeräte und Gastechnik GmbH & Co. KG

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