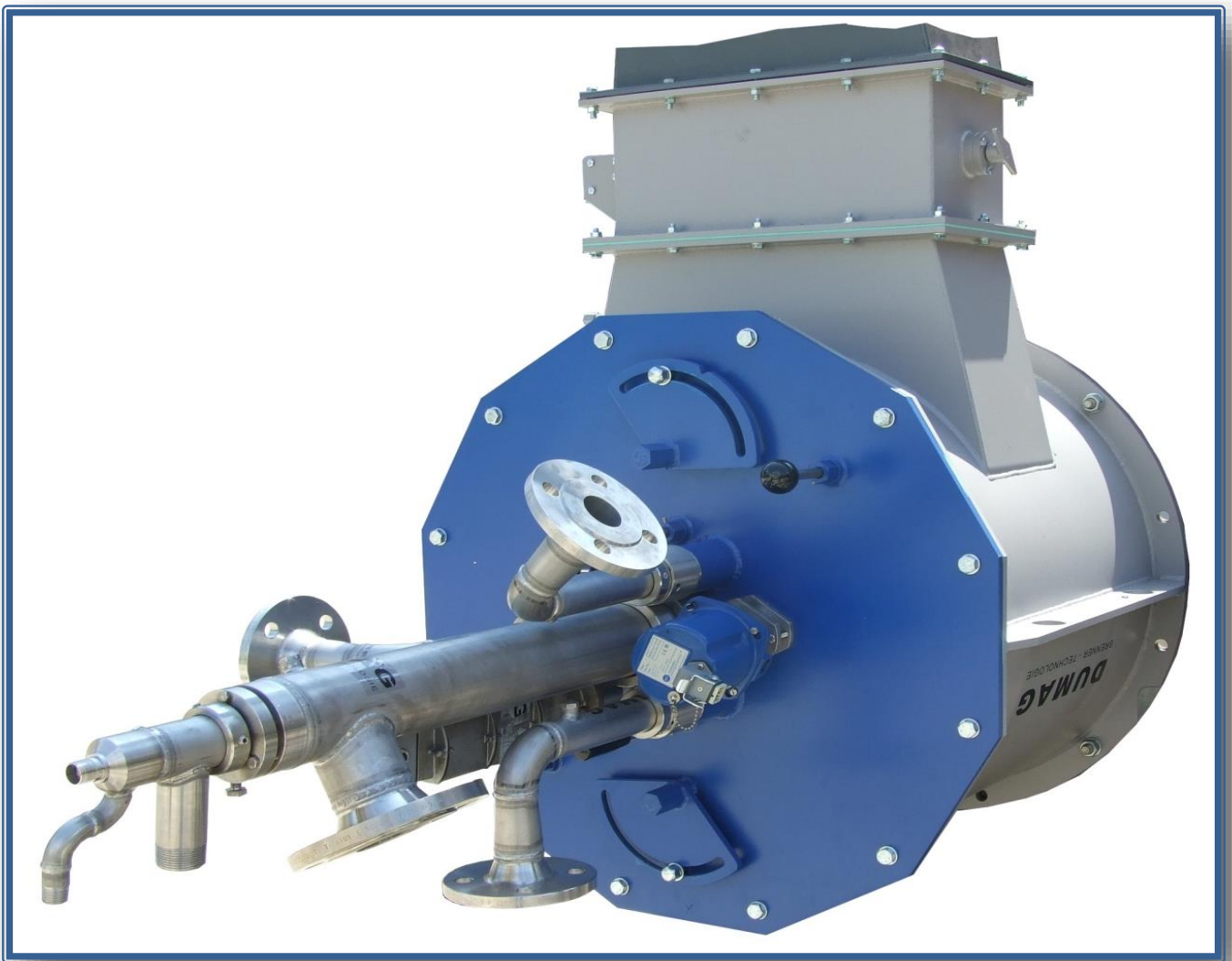


DUMAG® Industrial Burner IB

Multi-fuel burner for fuel gas, fuel oil, waste gas, waste oil

With double distribution system for combustion air.
Combustion air distribution in axial and swirl air. It is adjustable from the outside.
For optimized combustion and stabilization of the flame



**General
Description
Assembly
Standards
Certificates
Material
Dimensions**

Data sheet

1. General

The DUMAG® Industrial Burner IB is a burner, which is used by its universal variety of settings in combustion chambers, rotary kilns, fluidized bed furnaces, boilers etc

The combustion air is divided inside the burner in two partial streams, one stream is swirled, the other is axially fed to the combustion.

By varying the two streams is an ideal combustion air / fuel mixture can be adjusted.

This flexibility of adjustment is important especially in the combustion of liquid and gaseous wastes, off-gases and waste air to get a perfect combustion.

Combustion air temperatures up to 200°C, in special design up to 400°C.

At higher temperatures, the maximum capacity is reduced according to the flow rate in operating Bm³/h.

2. Description

The DUMAG® Industrial Burner IB is a Multifuel burner system for fuel gas, fuel oil, waste gas or waste liquid.

To ensure that the burner can be used universally, special attention has been paid to its functionality.

The combustion air in the burner is divided into two air streams, the unswirled central air and the swirl air, which flows around the central air in an axial direction into the combustion chamber.

The flow rates of both air streams can be individually adjusted using a slider.

The strength of the swirl can also be adjusted, as well as the rotational direction (clockwise or anticlockwise).

Applied gas lance or burner lance for liquids (8, 20, 25):

The different mass flows are supplied by burner lances for one or two liquids and gas lances GE or gas lances GU for fuel gas or waste gas (arranged centric or eccentric around the center)

Additional devices

To burn waste air or off gases additional the DUMAG® Gas Ring Distributor RVT or the DUMAG® Pre-Combustion Chamber VBK with built in gas lances can be applied.

Combustion air:

Combustion air is controlled by the DUMAG® Combustion Air Flap LKK (15)

The damper is designed for combustion air temperatures up to 200°C, in special design up to 400°C

In closed position this flap is not tightly closing.

If tightly closing dampers are required, please refer to the DUMAG® IB-r industrial burner (round dampers, tightly closing, up to 200°C).

Sealing of the lances and push rods which are inserted in the burner housing

The burner lances for gaseous or liquid media are sealed by stuffing boxes. The rods for adjusting device for swirling air flap and slider rods are sealed with O-rings.

Burner capacity

The burners are suitable for combustion air temperatures up to 200°C, in special design up to 400°C.

However, it must be taken into account that at higher combustion air temperatures, the max. burner capacity must be reduced in accordance with the operating m³/h.

Example to designate a burner

IB800GGS

IB	DUMAG® Industrial Burner IB
800 size of burner, see below
..GOS	Burner for gaseous and liquid media by use of triple media ultrasonic nozzle GOS..
..GOS	Burner for 2 liquid media by use of lance LOO..GOS + triple media ultrasonic nozzle GOS..
..GGS	Burner for gaseous and liquid media
..GS	Burner for liquid media with burner lance LS..GS and ultrasonic nozzle GS
..GG	Gas burner for gaseous media with 2 or more gas lances
..G	Gas burner for gaseous media with gas lance
	Liquid or gaseous media

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Data sheet

3. Assembly

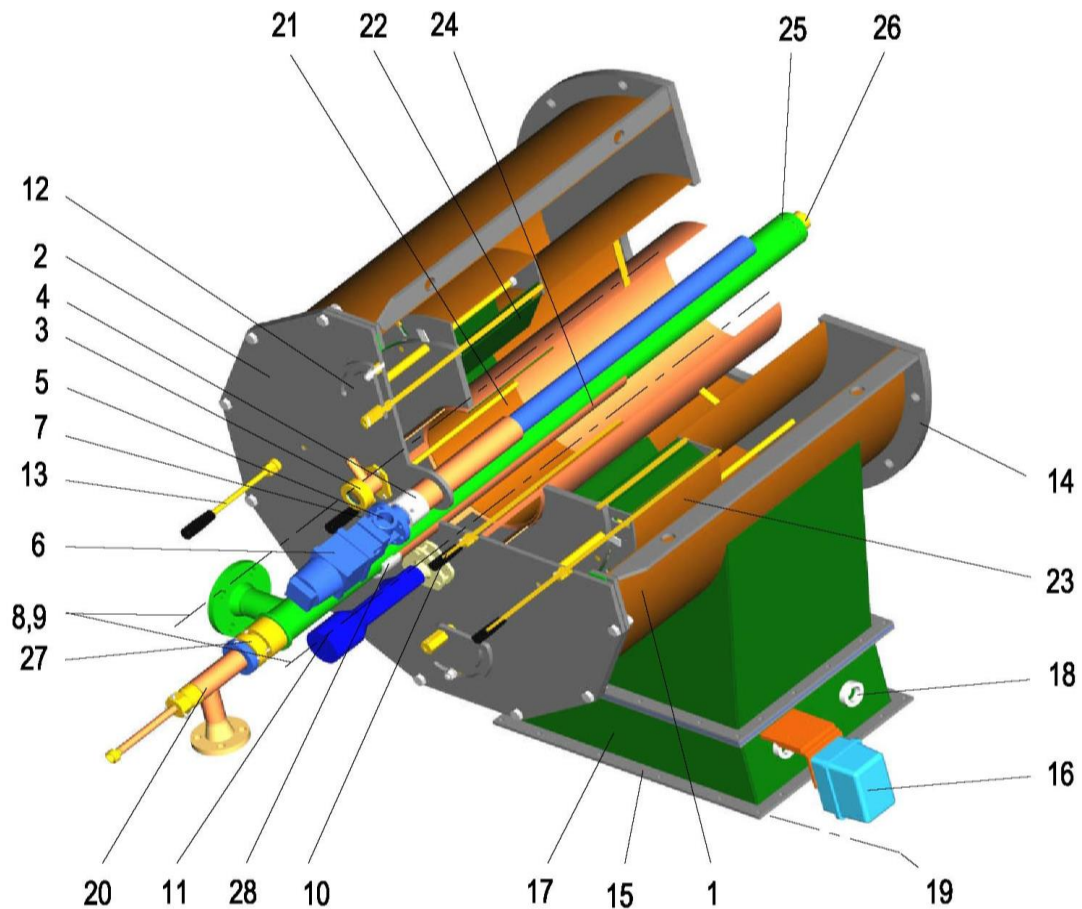
The heart of the burner is its swirl device with its outer adjustment for dividing the combustion air in swirl air and axial flowing air.

The swirl device is a combination of an externally adjustable swirl body and a central axial air flow. Both airflows can also be varied with slider (21, 23).

With this possibility the fine tuning of the burner can be done and the start-up time is reduced to a minimum.

On the burner front plate the adjusting device for swirling air slider (13) for the adjustment cranks with fastener (12), the slider rod (10), the sight port (3), the pilot burner (6) and the flame scanner (11) are mounted and are standard.

Depending on the application of the burner lances for liquid or gaseous media (8, 20, 25) are used and mounted on the burner plate.



- | | |
|--|---|
| 1 Burner casing | 16 Electro pneumatic or electric flap actuator |
| 2 Burner plate | 17 DUMAG® Combustion Air Flap LKK |
| 3 Sight port with cooling air connection | 18 Flap position indicator |
| 4 Stuffing box for pilot burner | 19 Pressure switch/pressure gauge connection
(on on-site combustion air channel) |
| 5 Ignition air connection | 20 Burner lance L..GS or L..GOS or GE |
| 6 pilot burner | 21 Central air slider |
| 7 Ignition gas connection | 22 Swirl flap |
| 8 Gas lances GE arranged around or in the center
(optional) | 23 Swirl air slider |
| 9 Stuffing box for gas lances GE (optional) | 24 Burner lance guide tube (or guide tube for gas
lance GE or GU) |
| 10 Central air rod | 25 Gas lance GU |
| 11 Flame scanner with cooling air connection | 26 Ultrasonic nozzle GS or GOS |
| 12 Adjustment cranks with fastener | 27 Stuffing box in gas lance GU
for lance L..GS, L..GOS or GE |
| 13 Swirl air slider rod | 28 Stuffing box for gas lances and lances for liquid |
| 14 Burner flange | |
| 15 Combustion air connection flange | |

Data sheet

4. Applied standards, regulations and rules, depending on the design of the burner

EN 746-1	Industrial thermo processing equipment – Common safety requirements for industrial thermo processing equipment
EN 746-2	Industrial thermo processing equipment – Safety requirements for combustion and fuel handling systems
EN 12952-8	Water-tube boilers and auxiliary installations – Part 8: Requirements for firing systems for liquid and gaseous fuels for the boiler
EN 12952-16	Water tube boilers and auxiliary installations – Part 16: Requirements for grate and fluidized bed firing systems for solid fuels for the boiler
EN 50156-1	Electrical equipment for furnaces and ancillary equipment. (VDE 0116)
TRG	Technical Rules for Pressurized Gases
TRbF	Technical Rules for flammable liquids
97/23/EG	Pressure Equipment Directive
2006/42/EC	Machinery directive
API 535	Standard for burners for fired heaters in General Refinery Services
API 560	Standard for design and manufacture of fired heaters
API 660	Shell and Tube Heat exchangers for General Refinery Services.
ASME VIII/Div.1	American Boiler and Pressure Vessel Code. Regulation for Design and Construction
API RP 582	Recommended Practice and Supplementary Welding Guidelines for the Chemical, Oil, and Gas Industries
ASME B31.2 (NFP AZ223.1)	Regulation of Fuel Gas Piping
ASME B31.3	Regulation of Process Piping
ASME IX	Welding Qualifications
ASTM	Material Specifications
EAC	Euroasian Conformity

5. Certificates

certified according to ISO9001, EAC (Euroasian Conformity)

Produced according to European or American standards, regulations and quality certificates

6. Materials

- Burner housing: standard 1.4571 or 1.4404 (AISI316L/AISI316Ti), upon request P265GH or other materials on request.
Turned parts of stainless steel, at least the same quality as the burner.

- Burner lance: standard 1.4571 or 1.4404 (AISI316L/AISI316Ti), upon request Hastelloy or others.

- Nozzle: standard 1.4841 (AISI314 or AISI310), upon request 1.4571 or 1.4404 (AISI316L/AISI316Ti), Hastelloy

Components exposed to the radiation of the combustion chamber may also be made of 1.4841 (AISI314 or AISI310).

Examples

DUMAG® Industrial Burner IB250 GG for 4 different gases, with 3 Gas lances + 1 Gas Ring Distributor

DUMAG® Industrial Burner IB4000GGS for 8 gases and liquids, 45 MW, Thermal Oxidizer for 22 Gas-/liquid streams



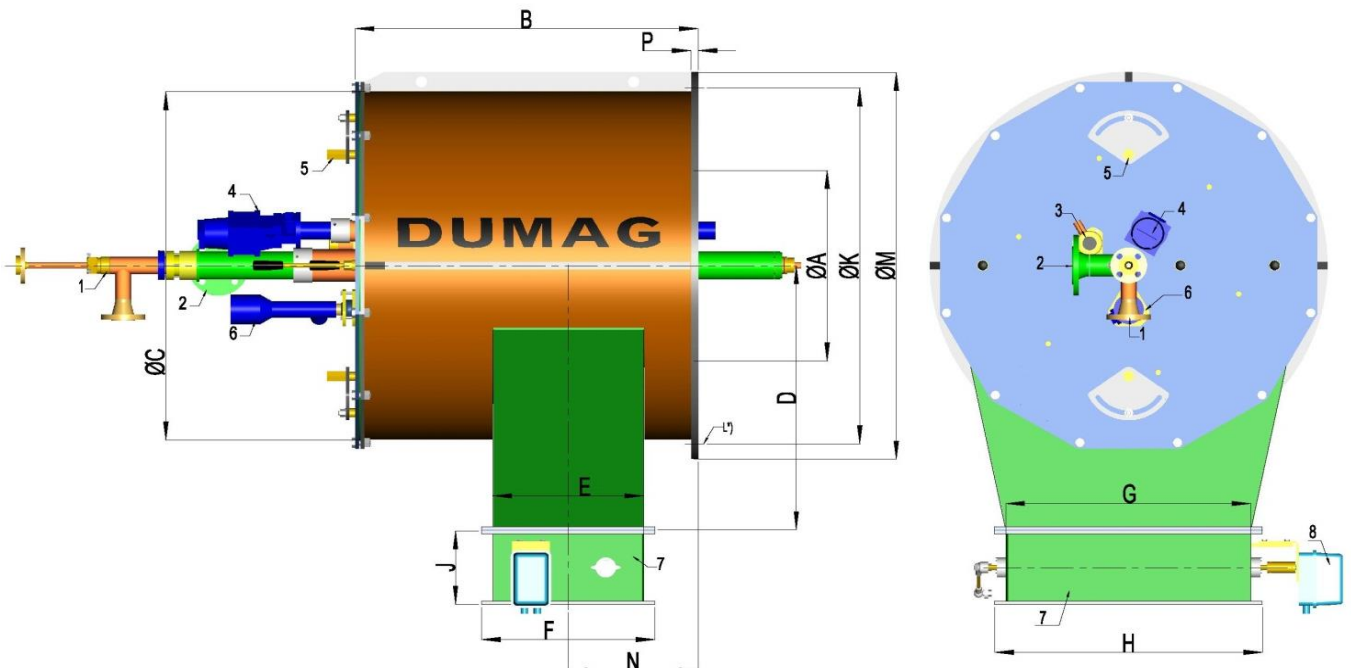
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Data sheet

7. Dimensions:



Type	Capacity MW	Combustion air Nm³/h	ØA mm	B mm	ØC mm	D mm	E mm	F mm	G mm	H mm	J mm	ØK mm	ØL*) mm	ØM mm	N mm	P mm	Weight ca. kg
IB100	1,2	1 500	165	400	350	275	96	156	186	246	160	390	12xØ14,5	430	175	12	125
IB150	1,7	2 100	200	450	420	320	112	172	232	292	160	460	12xØ14,5	500	175	12	140
IB250	3,0	3 700	240	506	506	375	142	202	292	352	200	546	12xØ14,5	586	260	12	190
IB400	5,0	6 100	290	640	612	445	206	266	452	512	260	662	12xØ18,5	702	332	15	240
IB600	7,0	8 500	355	640	700	500	206	266	452	512	260	750	12xØ18,5	790	337	15	320
IB800	9,0	11 000	400	690	780	550	242	302	522	582	290	830	12xØ18,5	870	369	15	400
IB1000	12,0	15 000	450	760	860	600	262	322	582	642	305	910	12xØ18,5	950	429	20	470
IB1500	18,0	22 000	520	880	950	660	400	460	650	710	250	1 005	12xØ24	1 055	315	20	600
IB2000	23,0	28 000	600	1 030	1 100	780	432	532	702	802	270	1 180	24xØ24	1 240	450	20	720
IB2500	29,0	35 000	670	970	1 220	850	482	582	784	884	250	1 300	24xØ24	1 360	370	25	790
IB3000	35,0	43 000	730	1 046	1 330	910	532	632	862	962	270	1 410	24xØ24	1 470	415	25	920
IB4000	46,0	56 000	840	1 200	1 540	1 060	610	710	995	1 095	270	1 620	24xØ24	1 680	455	25	1 160
IB5000	58,0	71 000	940	1 300	1 726	1 175	682	782	1 112	1 212	280	1 806	24xØ24	1 866	520	25	1 400
IB6000	70,0	85 000	1 030	1 440	1 890	1 275	742	842	1 222	1 282	300	1 970	24xØ24	2 030	630	25	1 640
IB8000	93,0	113 000	1 190	1 650	2 180	1 400	880	980	1 440	1 500	340	2 260	32xØ24	2 320	660	25	2 140
IB10000	116,0	142 000	1 330	1 850	2 440	1 550	990	1 090	1 620	1 680	380	2 520	32xØ24	2 580	784	25	
IB12000	140,0	171 000	1 460	2 030	2 670	1 700	1 080	1 180	1 780	1 840	410	2 750	36xØ24	2 810	890	25	
IB15000	174,0	212 000	1 630	2 270	2 990	1 900	1 200	1 300	1 970	2 030	450	3 070	40xØ24	3 130	992	25	

*) size of screw and length see data sheet 43528 for burner block

- | | | |
|----------------|--|---------------------------|
| 1 Burner lance | 4 pilot burner | 7 Flap for combustion air |
| 2 Gas lance GU | 5 Adjusting device for swirling air flap | 8 Actuator for air flap |
| 3 Sight port | 6 Flame detector | |

Subject to change without notice

Vers.18 11.03.2022