Gaudi Burner Product Manual

Gas Burner

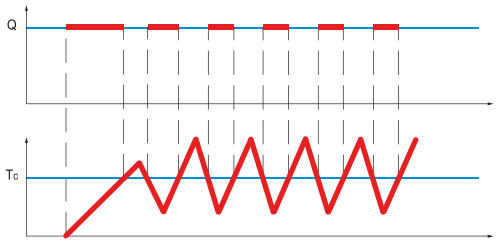
Gaudi
– BURNERS –

Burner Operating Modes

The operating modes of the burners introduced in this product manual include single-stage, two-stage, two-stage progressive, and proportional modulation.

Single-Stage Burner

The burner operates in an on-off mode. Once the burner's adjustment settings are completed, its output power is fixed (though it may vary slightly due to external conditions). The burner has only one operating point. The burner's start-stop is controlled by Tc (thermostat or pressure switch) on the control circuit. After the burner is started, if the temperature (or pressure) of the heated object is below the set value of Tc, Tc closes, and the burner operates. When the temperature (or pressure) of the heated object exceeds the set value of Tc, Tc opens, and the burner shuts down controllably. When the temperature (or pressure) of the heated object drops below the set value of Tc again, Tc closes, and the burner automatically restarts.



Single-stage burner operation mode

The temperature (or pressure) change of the heated object

Two-Stage Burner

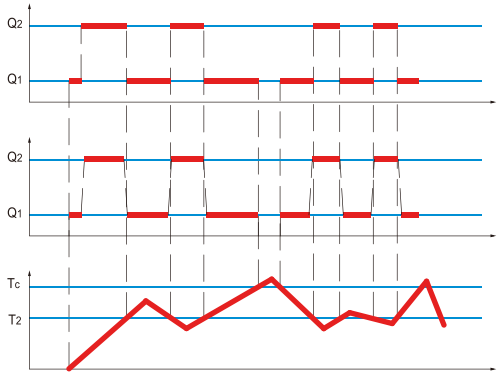
The burner operates in a low-fire/high-fire mode, meaning it has two operating points: it can operate at either the first stage (low fire) or the second stage (high fire).

The burner's control circuit includes two devices, Tc and T2 (thermostat or pressure switch), to control the burner's operating state. The set value of T2 is lower than that of Tc. After the burner is started, if the temperature (or pressure) of the heated object is below the set values of both Tc and T2, both Tc and T2 close, and the burner operates at the second stage (high fire). If the temperature (or pressure) of the heated object is below the set value of Tc but above the set value of T2, Tc closes while T2 opens, and the burner operates at the first stage (low fire). If the temperature (or pressure) of the heated object exceeds the set value of Tc, both T2 and Tc open, and the burner shuts down controllably. When the temperature (or pressure) of the heated object drops below the set value of Tc again, Tc closes, and the burner automatically restarts and operates as described above.

The two-stage burner provides more precise control over the temperature or pressure of the heated object compared to the single-stage burner.

Two-Stage Progressive Burner

The operating mode of the two-stage progressive burner is the same as that of the two-stage burner. The difference lies in the fact that the switching between the first and second stages (low fire and high fire) in the two-stage burner is abrupt, whereas the switching in the two-stage progressive burner is smooth and gradual, making the transition more stable.



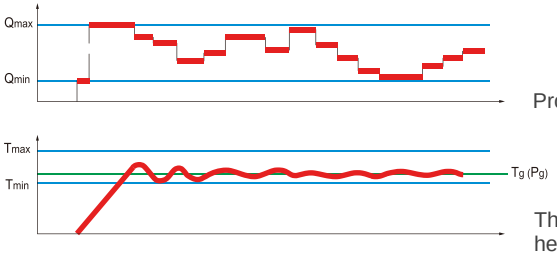
Two-stage burner operation mode

Two-stage progressive burner operation mode

The temperature (or pressure) change of the heated object

Proportional Modulation Burner

The burner can operate at any point within its working range, and its output power dynamically balances with the system's heating requirements. The temperature or pressure control of the heated object remains stable within a range very close to the desired set value. The change in the burner's output power is controlled by a PID electronic output regulator, RWF40.



Proportional/Modulating Burner Operation Mode

The temperature (or pressure) change of the heated object

Explanation of Burner Symbol Meanings

GAS

GDS/1... GDS/1 BLU (80mg)

Single-stage gas burner

GDS/2... GDS/2 BLU (80mg)

Two-stage burner operation mode

GDS/M... GDS/M BLU (80mg)

Two-stage Progressive/Modulating Gas Burner with Pneumatic Actuation

Gaudi

GAS

GDS/1 BLU Series

Single-stage burner operation mode

GDS Series Single-Stage Low NOx Burners

The GDS series single-stage burners are low NOx emission products developed for users with specific
requirements, complying with most pollution emission standards.
This series includes 5 models with a capacity range of 16– 330 kW, available in four different configurations. High manufacturing standards ensure safe and reliable burner operation.Each burner is equipped with a microprocessor-based
flame control panel,
featuring integrated fault diagnosis functionality.

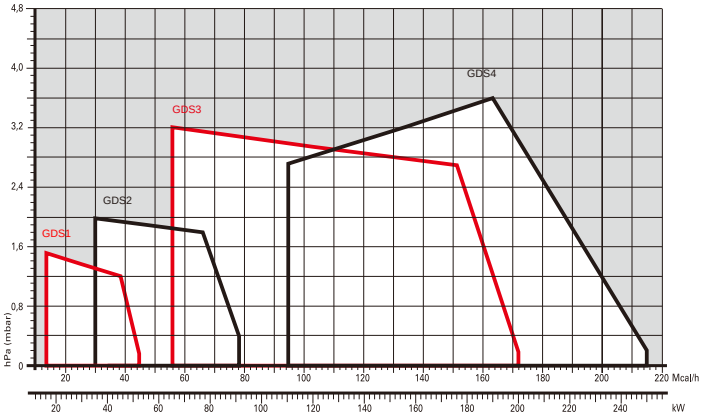
GDS1	16	÷	52	KW
GDS2	35	÷	91	KW
GDS3	65	÷	189	KW
GDS4	110	÷	246	KW
GDS5	160	÷	330	KW

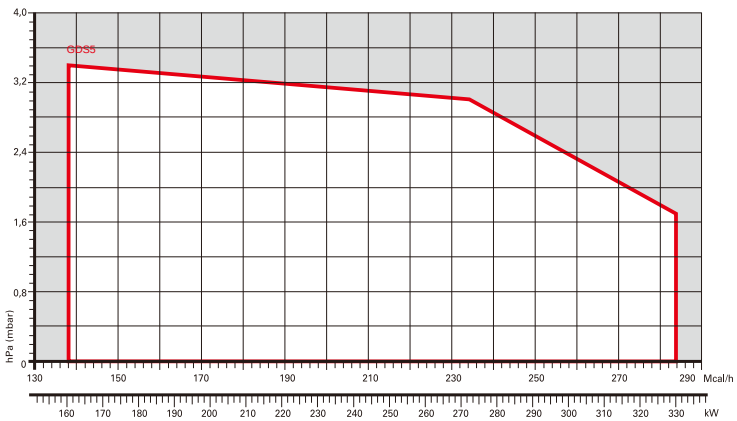
Vent Port

Air pressure switch

Despite its compact structure, the unique ventilation circuit ensures low noise emissions while maintaining high efficiency in pressure and air delivery. Each burner in this series is equipped with an adjustable air pressure switch.

Load diagram

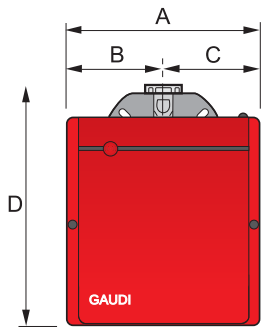


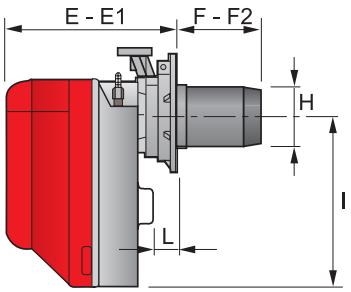


Selection range for burners

Test conditions comply with EN 676 standard:
Temperature: 20°C
Pressure: 1013.5 mbar
Altitude: 100 m a.s.l.

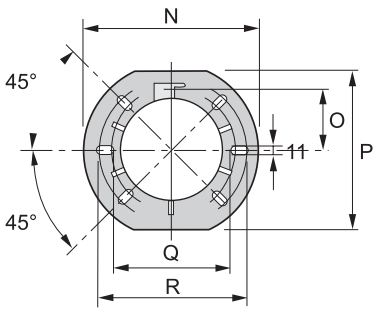
Overall Dimensions (mm)





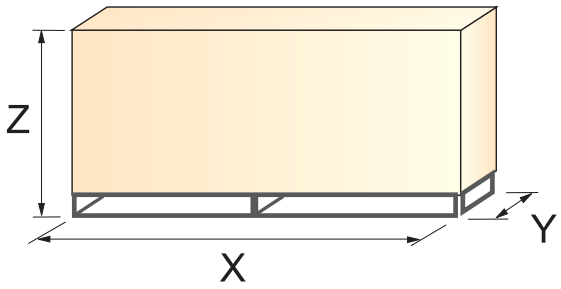
Model	A	B	C	D	E	E1	F	F2	H	I	L
GDS1	234	122	112	295	230	276	116	70	89	210	41
GDS2	255	122,5	125, 5	325	238	252	114	100	106	230	45
GDS3	300	150	150	391	262	280	128	110	129	285	45
GDS4	300	150	150	392	271	301	168	145	137	286	45
GDS5	300	150	150	392	278	300	203	225	137	286	45

Burner mounting flange on the boiler



Model	N	O	P	Q	R
GDS1	192	66	167	140	170
GDS2	192	66	167	140	170
GDS3	216	76,5	201	160	190
GDS4	218	80,5	203	170	200
GDS5	218	80,5	203	170	200

Packaging



Model	X	Y	Z	kg
GDS1	385	268	340	10
GDS2	395	288	365	11
GDS3	440	335	430	15
GDS4	500	335	430	16,5
GDS5	590	335	420	18

GDS/D BLU Series

Single-stage burner operation mode

The GAUDI GDS1D-4D series two-stage gas burners are low NOx emission products. This series of burners is specifically developed to meet various domestic heating needs while complying with the most stringent pollution emission standards.

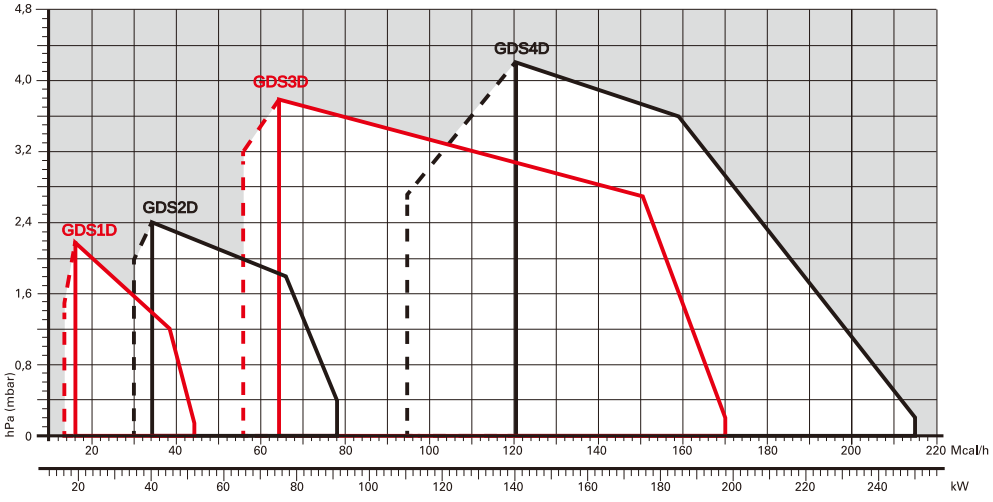
The series includes four different models with an output range of 16 – 245 kW and four different structures. All models use components exclusively designed by GAUDI for the GAUDI series. High manufacturing standards ensure the safe operation of the burners.

GDS1D	16/19	÷	52	kW
GDS2D	35/40	÷	91	kW
GDS3D	65/75	÷	189	kW
GDS4D	110/140	÷	246	kW

Combustion Head

The length of the combustion head entering the combustion chamber can be adjusted due to the use of a movable flange. A simple adjustment to the internal geometry of the combustion head allows it to match the burner's output.

The burner's combustion head features a new design that reduces pollution emissions during combustion and facilitates adaptation to various boilers and furnaces.



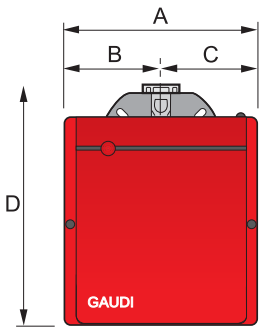
Load Diagram

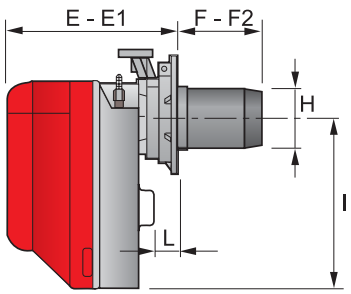
Selection range for burners

General operating range

Test conditions comply with EN 676 standard:
Temperature: 20°C
Pressure: 1013.5 mbar
Altitude: 100 m a.s.l.

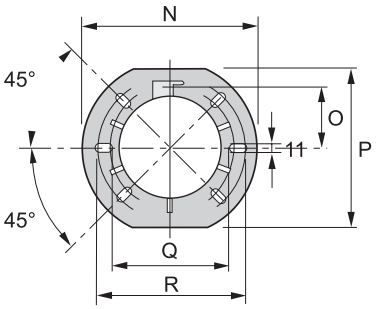
Overall Dimensions (mm)





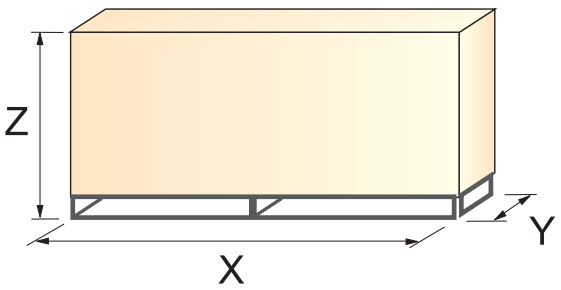
Model	A	B	C	D	E	E1	F	F2	H	I	L
GDS1D	234	122	112	295	230	276	116	70	89	210	41
GDS2D	255	122,5	125, 5	325	238	252	114	100	106	230	45
GDS3D	300	150	150	391	262	280	128	110	129	285	45
GDS4D	300	150	150	392	278	301	168	145	137	286	45

Burner mounting flange on the boiler



Model	N	O	P	Q	R
GDS1D	192	66	167	140	170
GDS2D	192	66	167	140	170
GDS3D	216	76,5	201	160	190
GDS4D	218	80,5	203	170	200

Packaging



Model	X	Y	Z	kg
GDS1D	385	268	340	11
GDS2D	395	288	365	12
GDS3D	440	335	430	16
GDS4D	500	335	430	18

GDS/M BLU Series

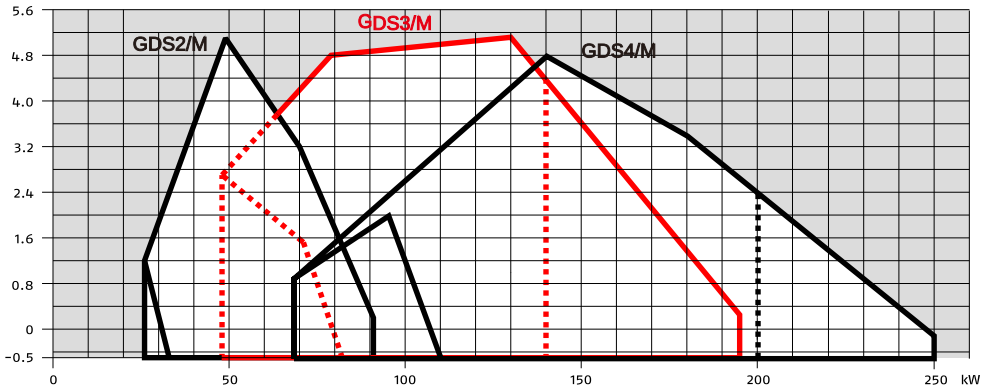
Proportional Gas Burners

The GAUDI GDS2-5/M series modulating two-stage gas burners are low NOx emission products. This series of burners is specially developed to meet various domestic heating needs while complying with the strictest pollution emission standards.

The series includes four different models with an output power range of 26-330 kW. All models use components exclusively designed by GAUDI for this series. High manufacturing standards ensure the safe operation of the burners. During the continuous improvement of this series, special attention has been paid to reducing burner noise, simplifying machine installation and commissioning, and minimizing the size to fit any type of boiler currently available on the market. The two-stage operation ensures the high performance of the burners.

All GAUDI burners undergo rigorous testing before leaving the factory.

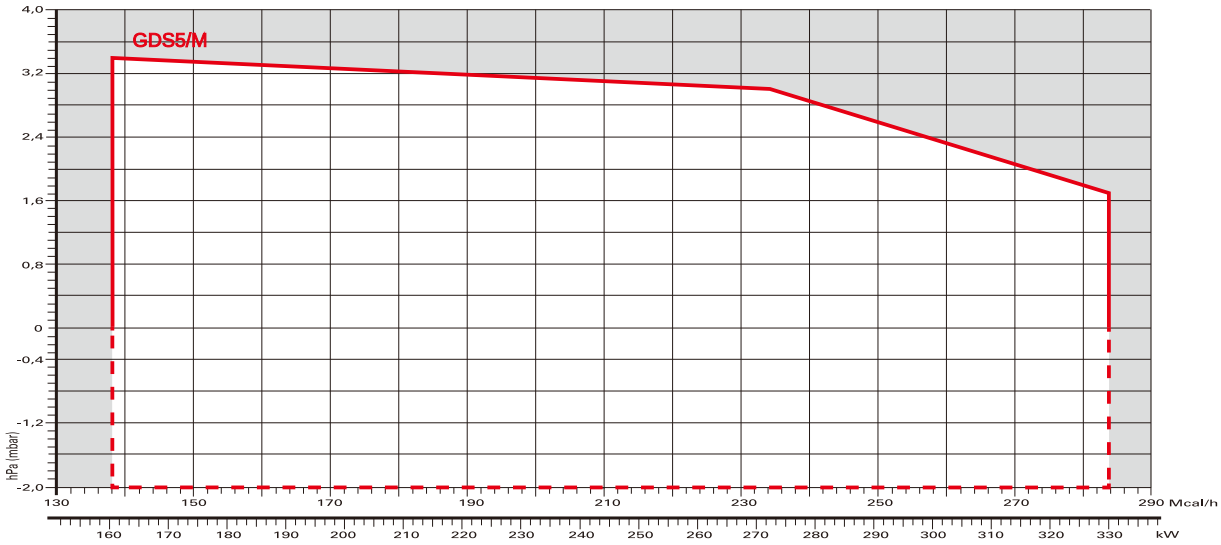
GDS2/M	26/49	÷	91	kW
GDS3/M	48/79	÷	195	kW
GDS4/M	68/140	÷	250	kW
GDS5/M	80/160	÷	330	kW



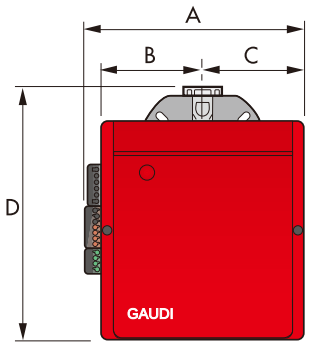
Selection range for burners

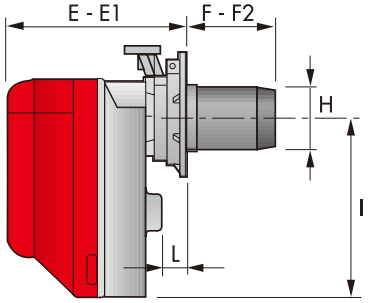
Proportional modulation range

Test conditions comply with EN 676 standard:
Temperature: 20°C
Pressure: 1013.5 mbar
Altitude: 0 m a.s.l.



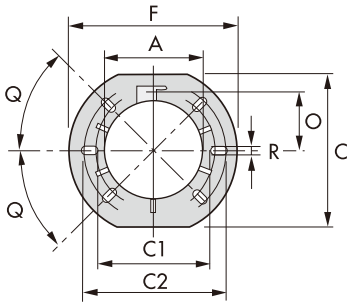
Overall Dimensions (mm)





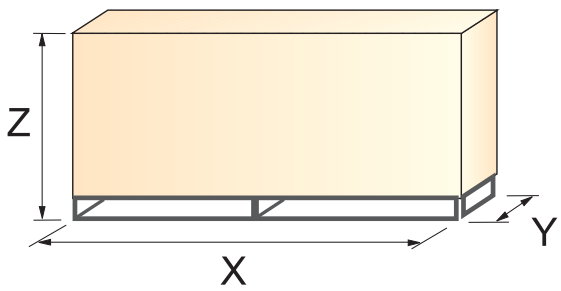
Model	A	B	C	D	E	E1	F	F2	H	I	L
GDS2/M	285	125,5	125,5	325	238	252	114	100	106	230	18
GDS3/M	330	150	150	391	262	280	128	110	129	285	21
GDS4/M	330	150	150	392	278	301	168	145	137	286	21
GDS5/M	300	150	150	392	278	300	225	203	137	286	45

Burner mounting flange on the boiler



Model	A	C	C1	C2	F	O	Q	R
GDS2/M	106	167	140	170	192	66	45°	11
GDS3/M	129	201	160	190	216	76,5	45°	11
GDS4/M	137	203	170	200	218	80,5	45°	11
GDS5/M	137	203	170	200	218	80,5	45°	11

Packaging



Model	X	Y	Z	kg
GDS2/M	405	328	375	12
GDS3/M	450	375	440	16
GDS4/M	510	375	440	18
GDS5/M	600	345	430	18

GDS/1 Series

Single-stage burner operation mode

The GDS/1 series burners have a processing range of 70 - 550 kW and are suitable for medium- and low-temperature hot water boilers, hot-air or steam boilers, and heat-conduction oil furnaces. The burner is of "single-stage" type, equipped with a microprocessor panel that provides operating indication and fault cause diagnosis. The specially designed air return circuit ensures optimal noise emission. Improvements in the fan and burner head performance guarantee flexibility in use and good operation at various output levels.

The unique design ensures a smaller size and easy operation and maintenance. Various accessories greatly enhance work flexibility.

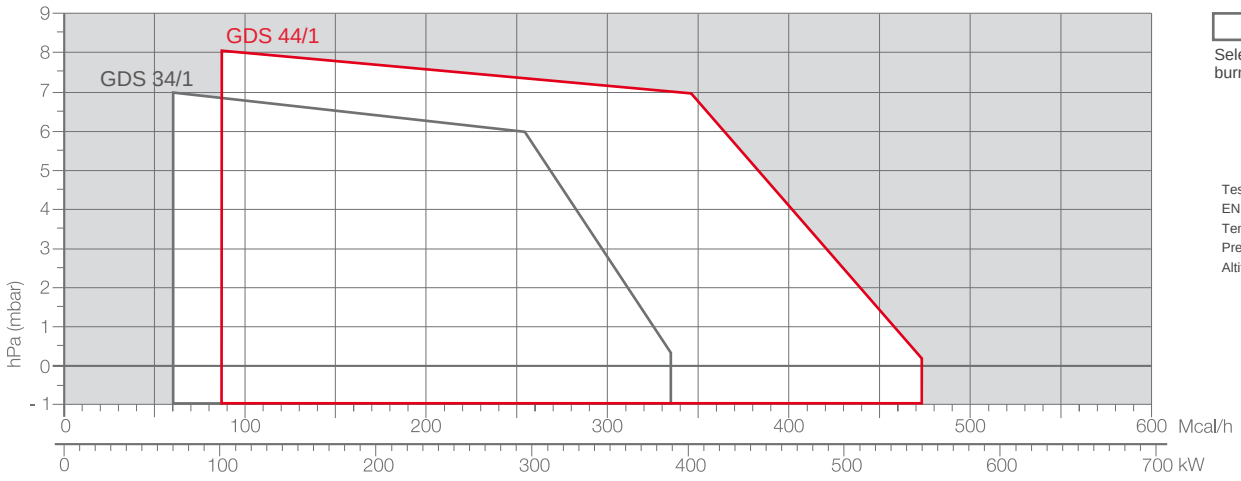
GDS34/1	70	÷	390	kW
GDS44/1	101	÷	550	kW

Gas Valve Group

For the gas valve group, fuel gas can be supplied from either the left or the right side. The gas valve group can be selected according to the gas output and the pressure in the gas supply pipe to match the systemrequirements. The gas valve group can be of "integral" type (main components in one unit) or "combined" type (a combination of individual components). The gas valve group can be either "single - stage" or "two - stage".
Gas valve groups with an output not exceeding 350 kW can all adopt the single - stage type.

GDS/1 Example of Flange Connection for Burner Gas Valve Group

Load Diagram

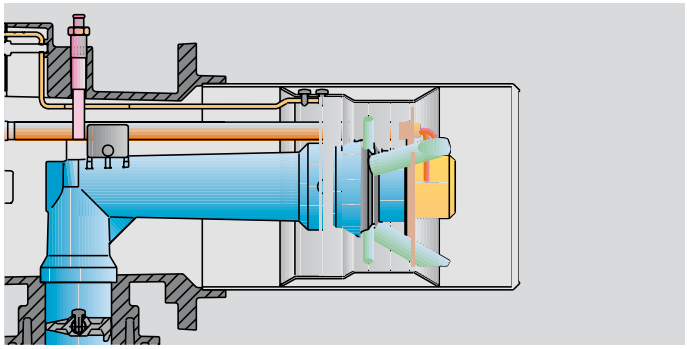


Selection range for burners

Test conditions comply with EN 676standard:
Temperature: 20°C
Pressure: 1013.5 mbar
Altitude: 0 m a.s.l.

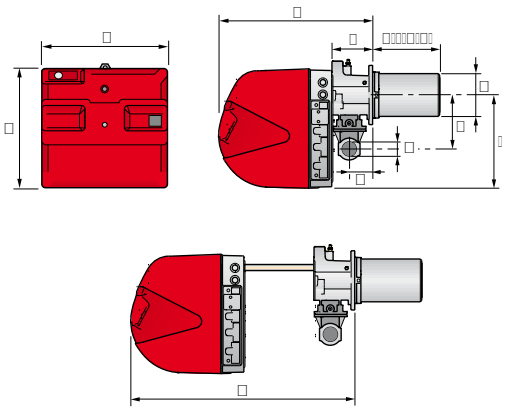
Burner Head

The GDS/1 series burners offer burner heads of different lengths for selection.
The choice of burner head depends on the thickness of the front plate of the boiler and the type of boiler.
Check whether the depth of the burner head installe in the combustion chamber is correct according to the boiler type.
By adjusting the screws fixed on the flange and changing the relative position of the inner cylinder of the burner head, the specified maximum output can be easily adjusted.



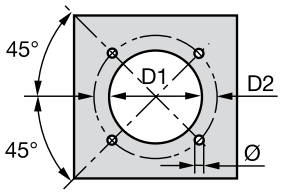
Examples of Burner Heads

Overall Dimensions (mm)



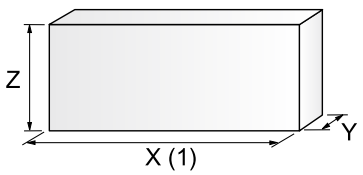
Model	A	D	E	F - F(1)	H	I	L	M	N	O	S	V
GDS 34/1	442	422	508	216 -351	140	305	138	1"1/2	84	780	-	177
GDS 44/1	442	422	508	216 -351	152	305	138	1"1/2	84	780	-	177

Burner mounting flange on the boiler



Model	D1	D2	Ø
GDS 34/1	160	224	M8
GDS 44/1	160	224	M8

Packaging



Model	X (1)	Y	Z	kg
GDS 34/1	1000	485	500	32
GDS 44/1	1000	485	500	33

GDS/2 Series

Smooth Two - stage Gas Burners

The GDS series burners have an output range of 45 - 2715kW, suitable for medium-and low-temperature hot water boilers, hot air boilers, steam boilers, and heat-conducting oil boilers. The operation mode of this series of burners is "smooth two-stage". The GDS series burners can achieve a high-efficiency operation level in various application fields, reducing fuel consumption and operating costs. Their unique design ensures that the equipment is compact, easy to use, and convenient to maintain. A full range of accessories is available to ensure operational flexibility.

GDS 34	70/130	÷	390	kW
GDS 44	101/203	÷	550	kW
GDS 50	116/290	÷	580	kW
GDS 70	192/465	÷	814	kW
GDS 100	232/698	÷	1163	kW
GDS 130	372/930	÷	1512	kW
GDS 190	470/1279	÷	2290	kW
GDS 250	630/1252	÷	2715	kW

GDS70-250 Examples of Burner Heads

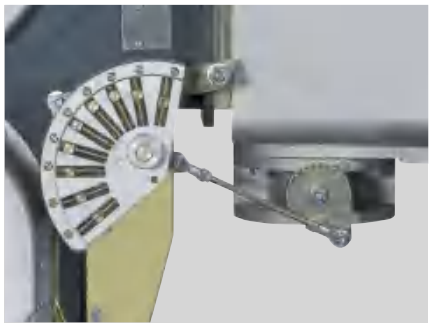
Burner Head

The GDS series burners can be equipped with burner heads of different lengths. The choice of burner head depends on the type of boiler and the thickness of the front boiler plate. For different boiler types.
By adjusting the screws fixed on the flange, it is very easy to adjust the burner head components to the maximum output state.

Gas Valve Group

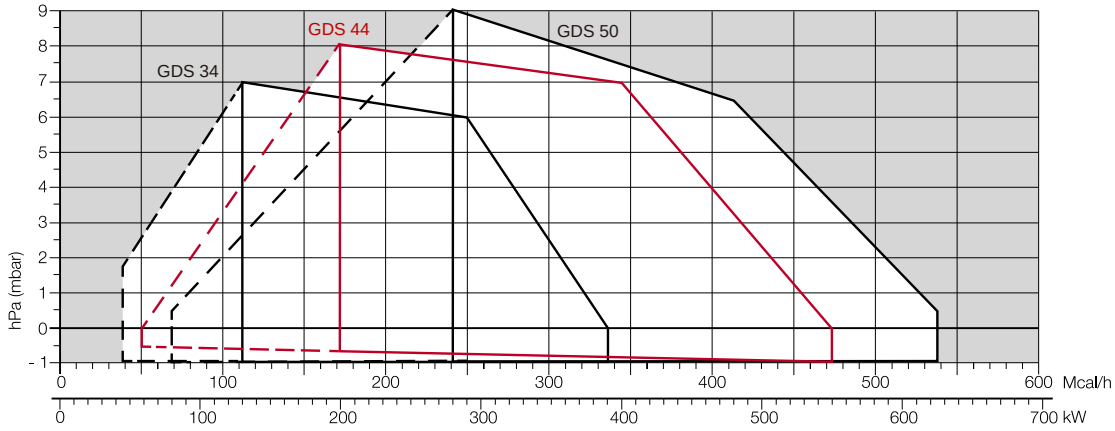
The burner is equipped with a butterfly valve for regulating fuel delivery, which is controlled by a servo motor with a variable - cam. Fuel can be supplied from the left or right side of the burner. If the gas supply pipeline (for GDS34 - 44 models, it is a component) has excessive pressure, the maximum gas pressure switch will shut down the burner. Select the most suitable gas valve group for the system requirements according to the gas output and the pressure in the supply pipeline.

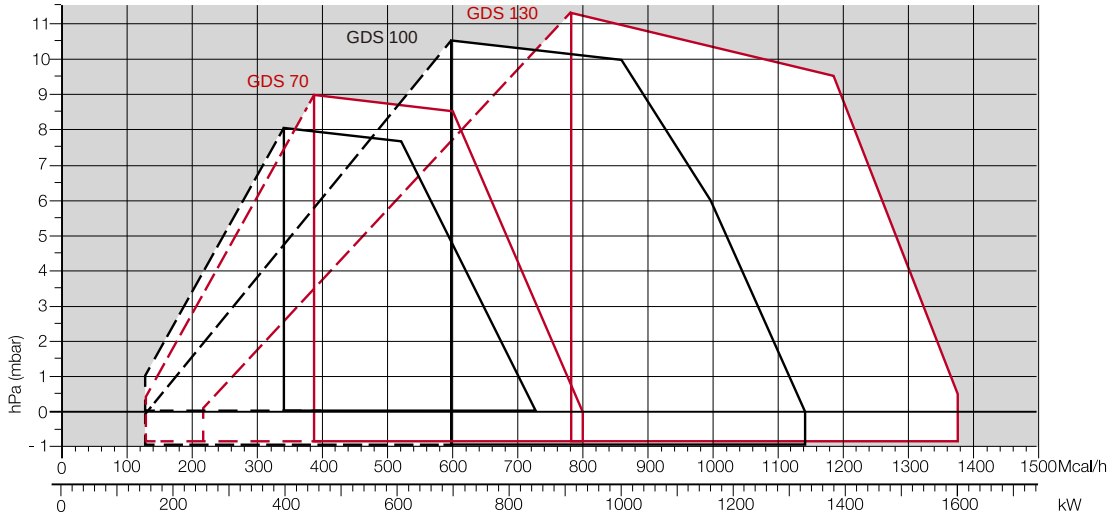
GDS 34-44Examples of Variable - Line Cam for Burners

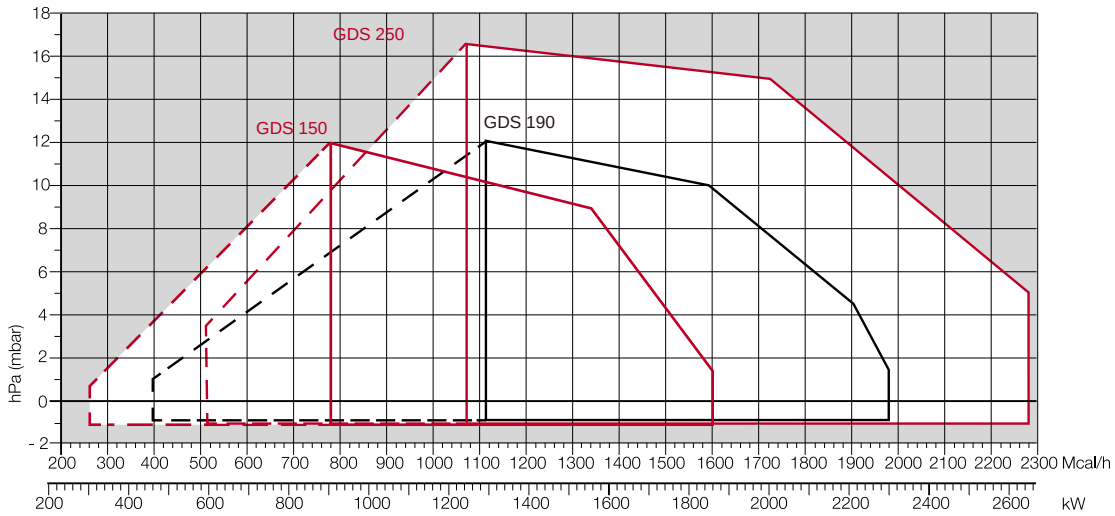


GDS 250 Examples of Variable - Line Cam for Burners

Load Diagram







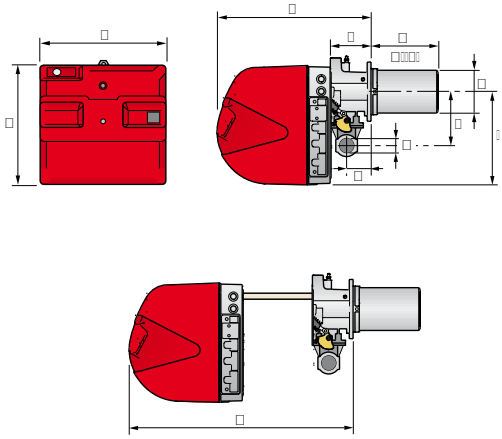
Test conditions comply with
EN 676standard:
Temperature: 20°C
Pressure: 1013.5 mbar
Altitude: 0 m a.s.l.

Effective Output Range of Burners for Each Model

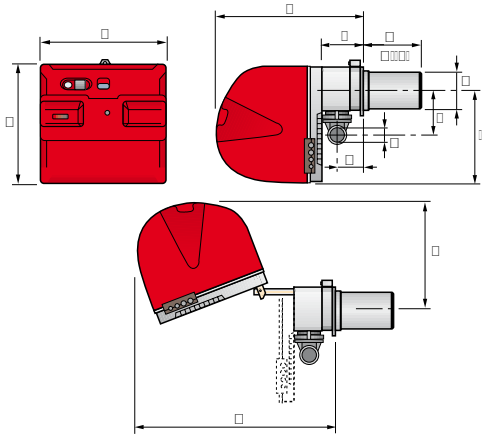
Turn - down Ratio Range

Overall Dimensions(mm)

GDS 34-44

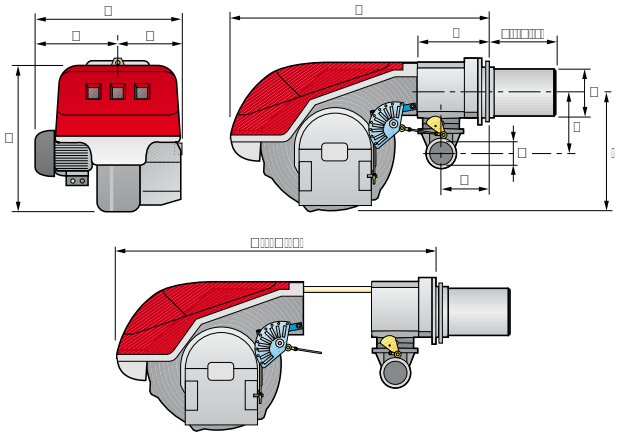


GDS 50



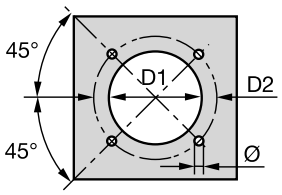
Model	A	D	E	F - F (1)	H	I	L	M	N	O	P	V
GDS 34	442	422	508	216 - 351	140	305	138	1"1/2	84	780	-	177
GDS 44	442	422	508	216 - 351	152	305	138	1"1/2	84	780	-	177
GDS 50	476	474	580	216 - 351	152	352	164	1"1/2	108	810	719	168

GDS 70-100-130-150-190-250



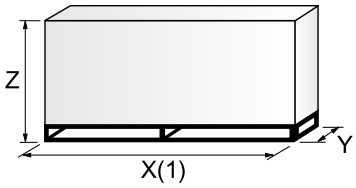
Model	A	B	C	D	E	F - F (1)	H	I	L	M	N	O - O (1)	V
GDS 70	511	296	215	555	840	250 - 385	179	430	214	2"	134	1161 - 1296	221
GDS 100	527	312	215	555	840	250 - 385	179	430	214	2"	134	1161 - 1296	221
GDS 130	553	338	215	555	840	280 - 415	189	430	214	2"	134	1161 - 1296	221
GDS 150	675	370	305	590	840	280 - 415	189	435	214	2"	134	1180 - 1315	221
GDS 190	681	366	315	555	872	370 - 520	222	430	230	2"	150	1328 - —	221
GDS 250	732	427	305	555	872	370 - 520	222	430	230	2"	150	1328 - —	262

Mounting Flange



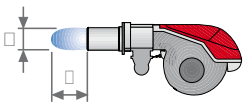
Model	D1	D2	Ø
GDS 34	160	224	M8
GDS 44	160	224	M8
GDS 50	160	224	M8
GDS 70	185	275-325	M12
GDS 100	185	275-325	M12
GDS 130	195	275-325	M12
GDS 150	195	275-325	M12
GDS 190	230	325-368	M16
GDS 250	230	325-368	M16

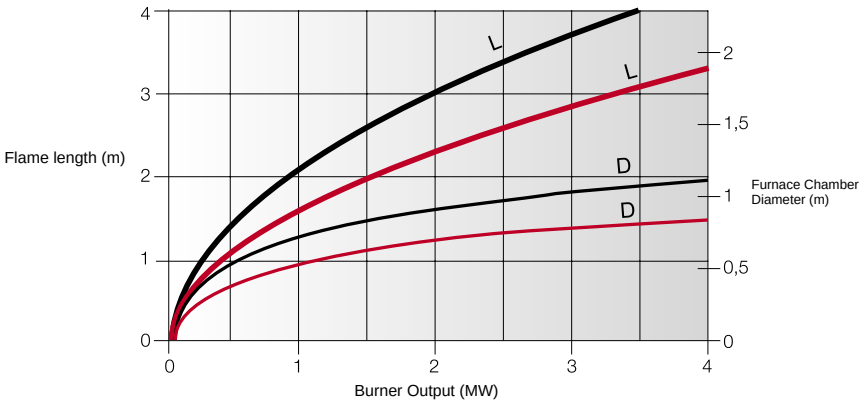
Packaging



Model	X (1)	Y	Z	kg
GDS 34	1000	485	500	32
GDS 44	1000	485	500	33
GDS 50	1200	502	520	41
GDS 70	1405	700	660	70
GDS 100	1405	700	660	73
GDS 130	1405	700	660	76
GDS 150	1400-1420	1000	660	110
GDS 190	1400-1420	1000	660	115
GDS 250	1400-1420	1040	725	117

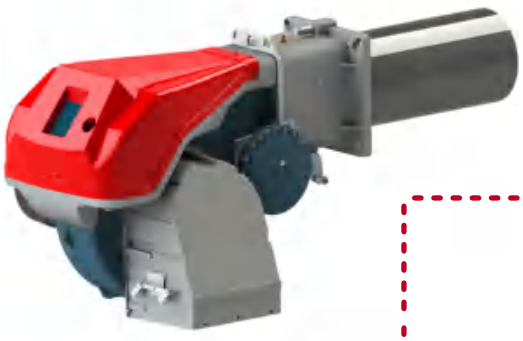
Flame Size





GDS/M Series

Smooth Proportional Gas Burner



The GDS/M series burners have an output range of 45 - 2715kW and are suitable for medium-and low-temperature hot water boilers, hot air boilers, steam boilers, and heat-conducting oil boilers. The operation mode of this series of burners is "smooth two-stage fire". GDS series burners can achieve high-efficiency operation in various application fields, reducing fuel consumption and operating costs. Their unique design ensures small equipment size, simple operation, and convenient maintenance. In addition, a full range of accessories is available to ensure operational flexibility.

GDS 34/M	70/130	÷	390	kW
GDS 44/M	101/203	÷	550	kW
GDS 50/M	116/290	÷	580	kW
GDS 70/M	192/465	÷	814	kW
GDS 100/M	232/698	÷	1163	kW
GDS 130/M	372/930	÷	1512	kW
GDS 150/M	470/1279	÷	2290	kW
GDS 250/M	630/1252	÷	2715	kW

GDS70-250 Examples of Burner Heads

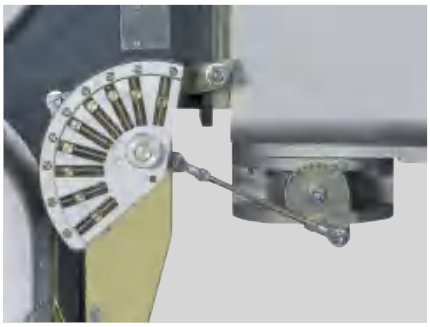
Burner Head

The GDS series burners can be equipped with burner heads of different lengths. The choice of burner head depends on the boiler type and the thickness of the boiler front panel. According to the boiler type, check whether the length of the burner entering the furnace is correct. By adjusting the screws fixed on the flange, it is easy to adjust the internal components of the burner head to the maximum output state.

Gas Valve Group

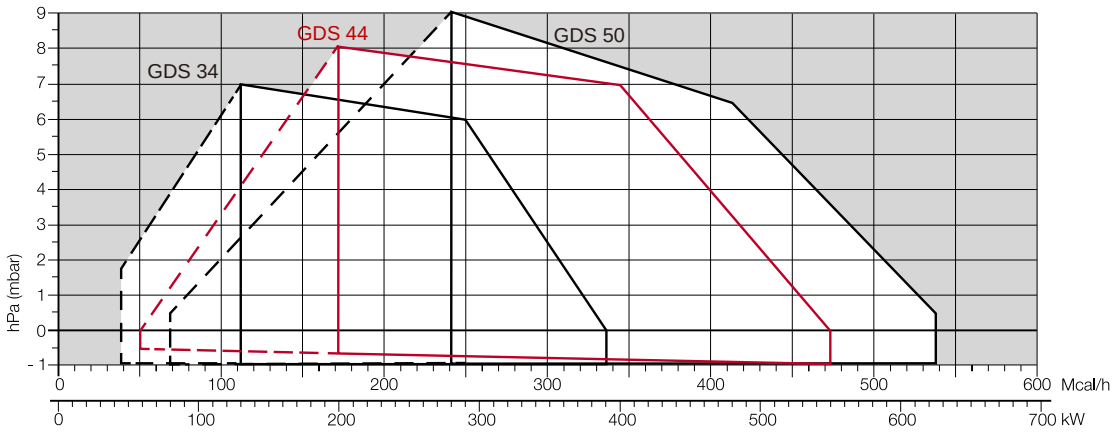
The burner is equipped with a screw for regulating fuel delivery, which is controlled by a servo motor with a variable - curve cam. Fuel can be supplied from the left or right side of the burner. If the gas supply pipeline (for GDS 34 - 44 MZ type accessories) has too high pressure, the maximum gas pressure switch will shut down the burner. Based on the gas output and the pressure in the supply pipeline, select the gas valve group that best suits the system requirements.

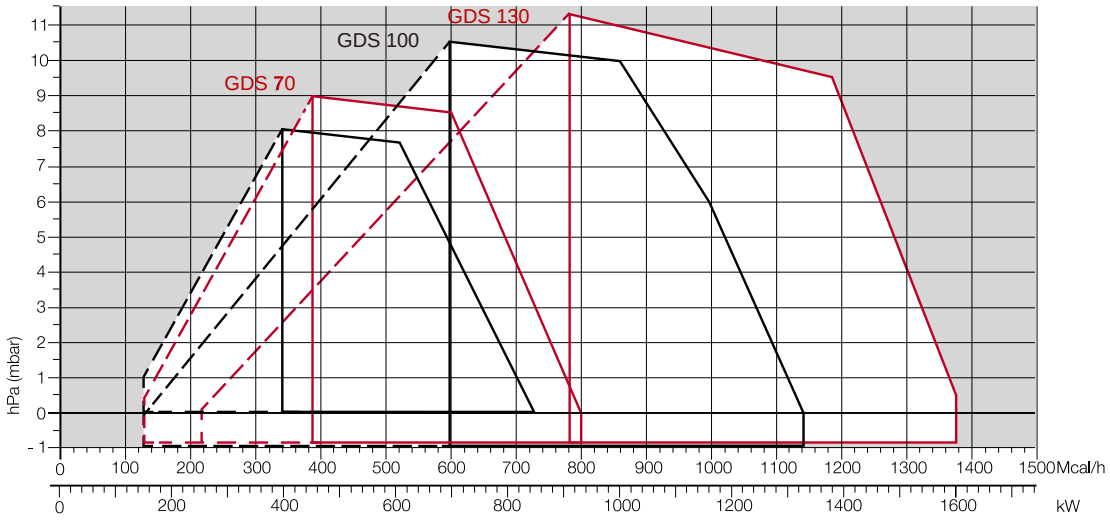
GDS 34-44 Examples of Variable - Line Cam for Burners

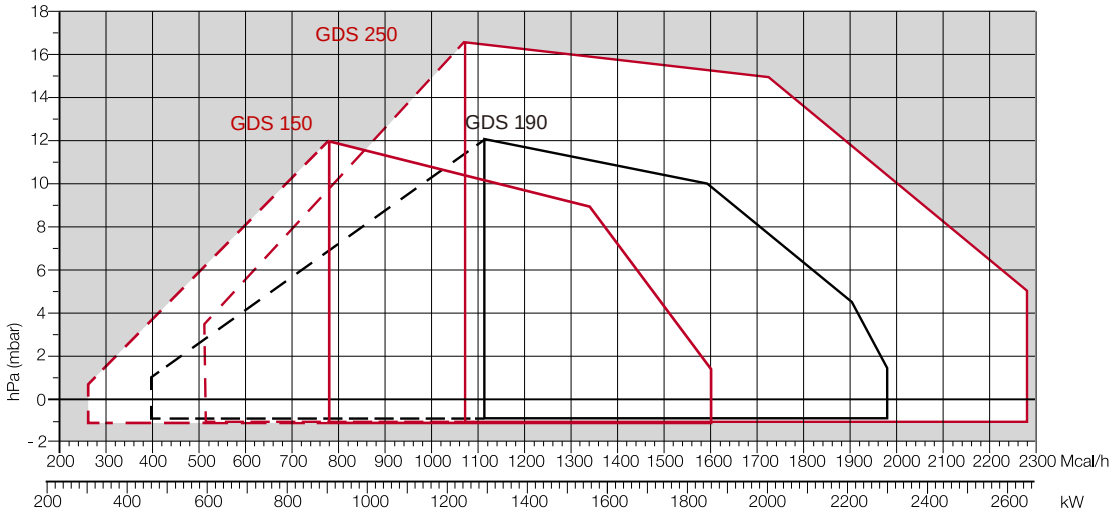


GDS250 Examples of Variable - Line Cam for Burners

Load Diagram







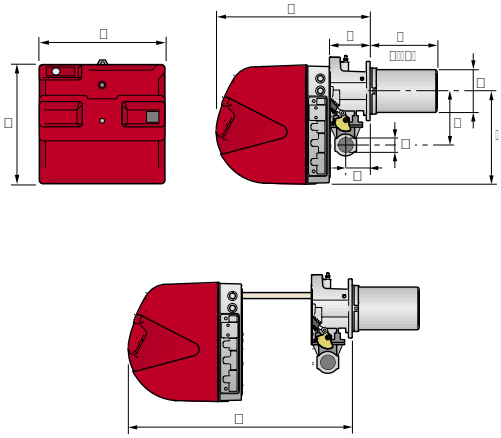
Test conditions comply with
EN 676standard:
Temperature: 20°C
Pressure: 1013.5 mbar
Altitude: 0 m a.s.l.

Effective Output Range of Burners for Each Model

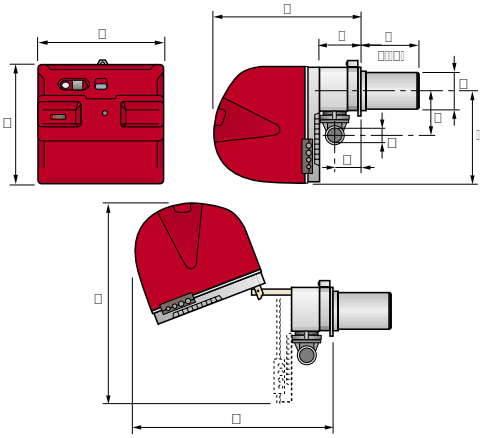
Turn - down Ratio Range

Overall Dimensions(mm)

GDS34/M GDS 44/M

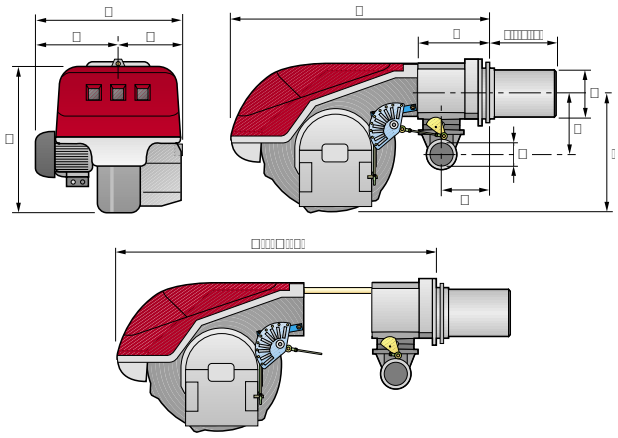


GDS50/M



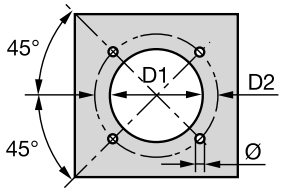
Model	A	D	E	F - F (1)	H	I	L	M	N	O	P	V
GDS34/M	442	422	508	216 - 351	140	305	138	1"1/2	84	780	-	177
GDS44/M	442	422	508	216 - 351	152	305	138	1"1/2	84	780	-	177
GDS50/M	476	474	580	216 - 351	152	352	164	1"1/2	108	810	719	168

GDS70/M-100/M-130/M-150/M-190/M-250/M



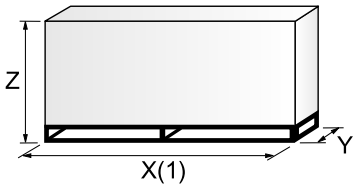
Model	A	B	C	D	E	F - F (1)	H	I	L	M	N	O - O (1)	V
GDS70/M	511	296	215	555	840	250 - 385	179	430	214	2"	134	1161 - 1296	221
GDS100/M	527	312	215	555	840	250 - 385	179	430	214	2"	134	1161 - 1296	221
GDS130/M	553	338	215	555	840	280 - 415	189	430	214	2"	134	1161 - 1296	221
GDS150/M	675	370	305	590	840	280 - 415	189	435	214	2"	134	1180 - 1315	221
GDS190/M	681	366	315	555	872	370 - 520	222	430	230	2"	150	1328 - —	221
GDS250/M	732	427	305	555	872	370 - 520	222	430	230	2"	150	1328 - —	262

Mounting Flange



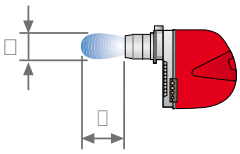
Model	D1	D2	Ø
GDS34/M	160	224	M8
GDS44/M	160	224	M8
GDS50/M	160	224	M8
GDS70/M	185	275-325	M12
GDS100/M	185	275-325	M12
GDS130/M	195	275-325	M12
GDS150/M	195	275-325	M12
GDS190/M	230	325-368	M16
GDS250/M	230	325-368	M16

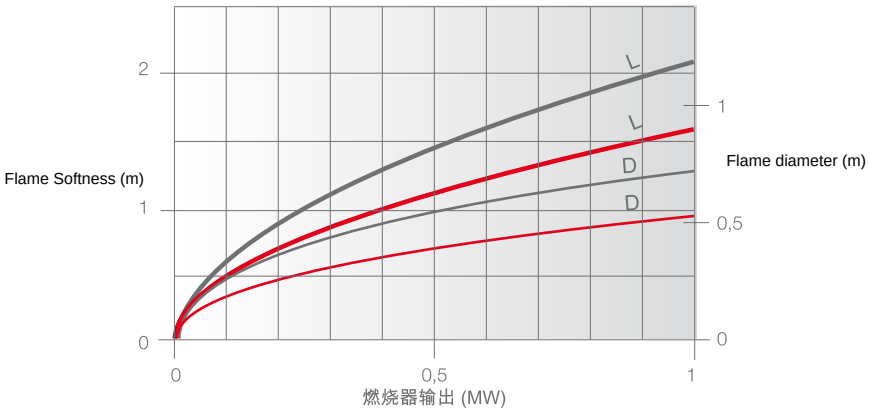
Packaging

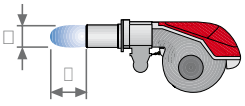


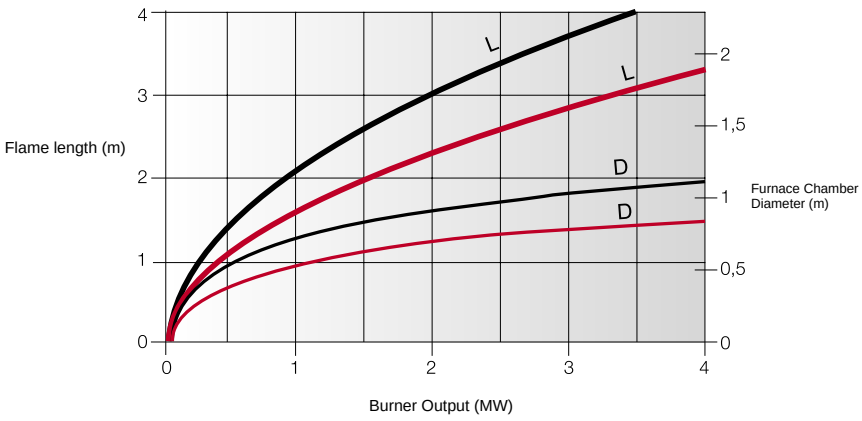
Model	X (1)	Y	Z	kg
GDS34/M	1000	485	500	32
GDS44/M	1000	485	500	33
GDS50/M	1200	502	520	41
GDS70/M	1405	700	660	70
GDS100/M	1405	700	660	73
GDS130/M	1405	700	660	76
GDS150/M	1400-1420	1000	660	110
GDS190/M	1400-1420	1000	660	115
GDS250/M	1400-1420	1040	725	117

Flame Size









GDS/M BLUSeries

GAS

Proportional Gas Burners

GDS 310-410-800/M BLU burners are characterized by an integral structure, meaning all necessary components are combined into a single unit, making installation easier and faster. These burners have a firing range of 500 to 8100 kW and are designed for hot water boilers or industrial steam generators. They can operate in "two-stage progressive" mode, or optionally, a PID logic regulator can be installed for "modulation," or they can be adjusted via an external 4-20mA/0-10V signal.

The mechanical cam mechanism for regulation allows for achieving a high turndown ratio across the entire firing range. As a result, the burner can precisely supply the required power, ensuring high-efficiency system operation and stable settings while reducing fuel consumption and operating costs. The burner head, designed using advanced simulation equipment, ensures low pollutant emissions (NOx < 80 mg/kWh).

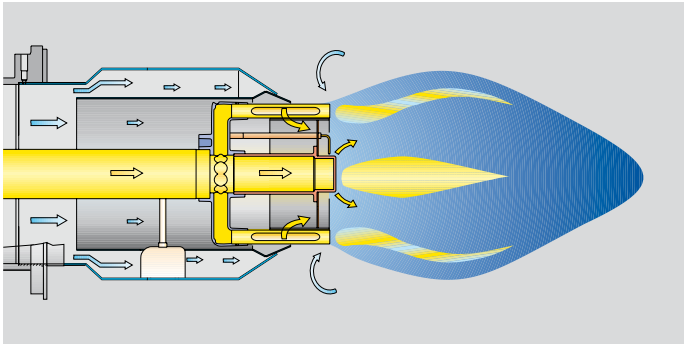
GDS 310/M BLU	500/1350	÷	3800 kW
GDS 410/M BLU	950/1830	÷	4590 kW
GDS 510/M BLU	1000/2500	÷	5170 kW
GDS 610/M BLU	1410/3000	÷	6500 kW
GDS 800/M BLU	1200/3500	÷	8100kW

Burner Head

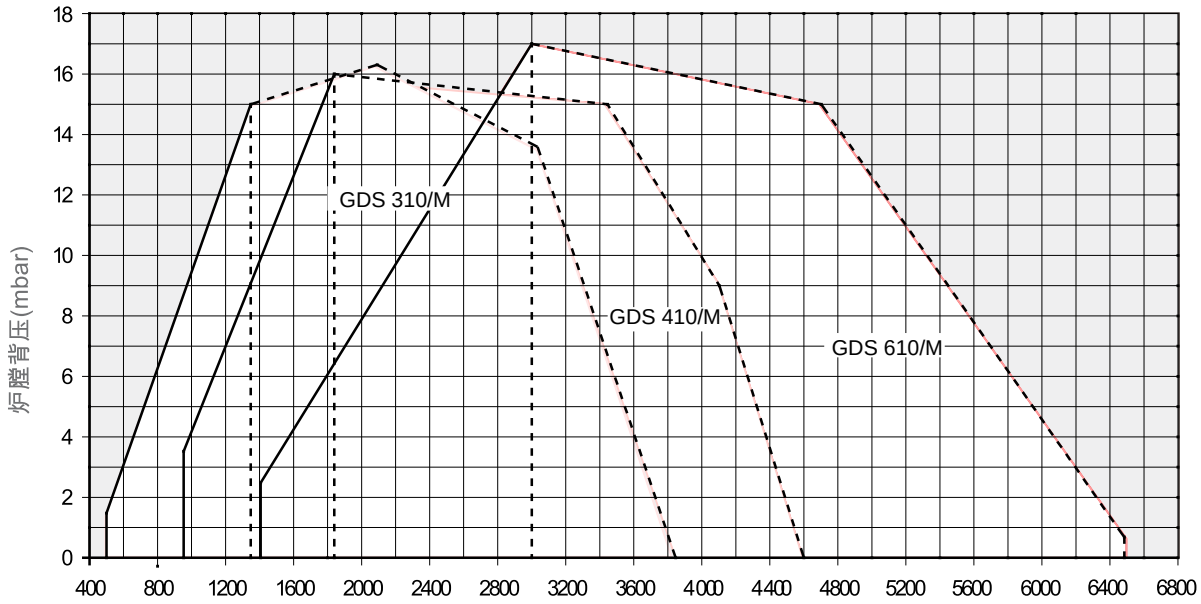
The innovative burner head regulation system can effectively ensure that the burner head moves smoothly during regulation while reducing noise and minimizing pollutant emissions.
Simple adjustment of the burner head can change its internal geometry to adapt to the output of the burner.
The servo - motor moves the burner head according to different loads while adjusting the damper shutter. The burner head is adjusted via a simple lever.
This system ensures that the burner achieves the best air - fuel mixture at each load point.

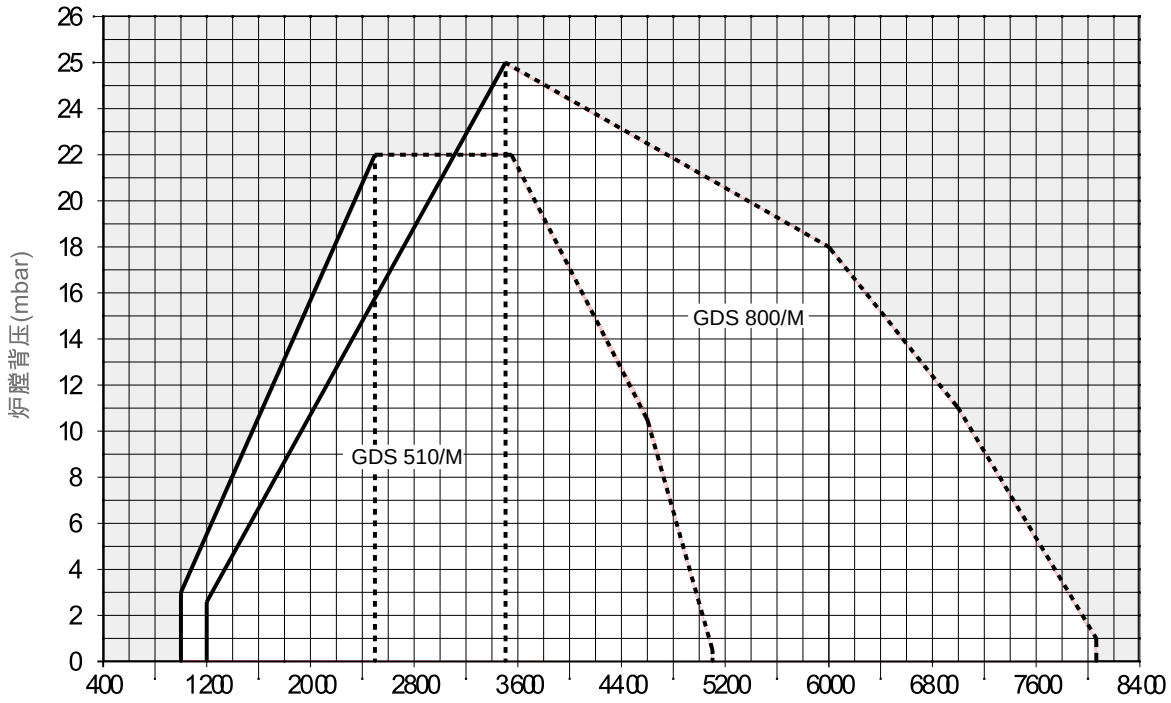
GDS510/M BLUBurner Head Example

The GDS/M BLU series burners use the latest design to optimize the air/fuel ratio, thereby effectively reducing pollutant emissions.
The gas from the burner head enters the combustion chamber through an opening perpendicular to the air flow; part of the fuel is directly injected into the center of the flame. This reduces the combustion temperature and decreases the formation of thermal NOx.
Staged combustion prevents the appearance of high - oxygen - containing zones in the flame. The high - velocity combustion air leads to flue gas recirculation, further reducing pollutant emissions. The emission level is even lower than the standard requirements.



Load Diagram

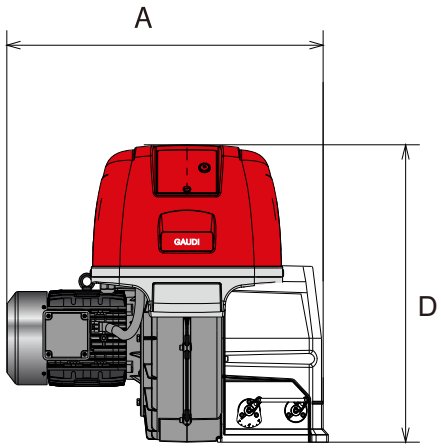


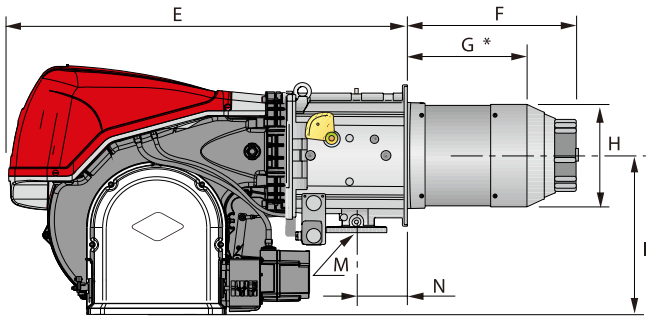


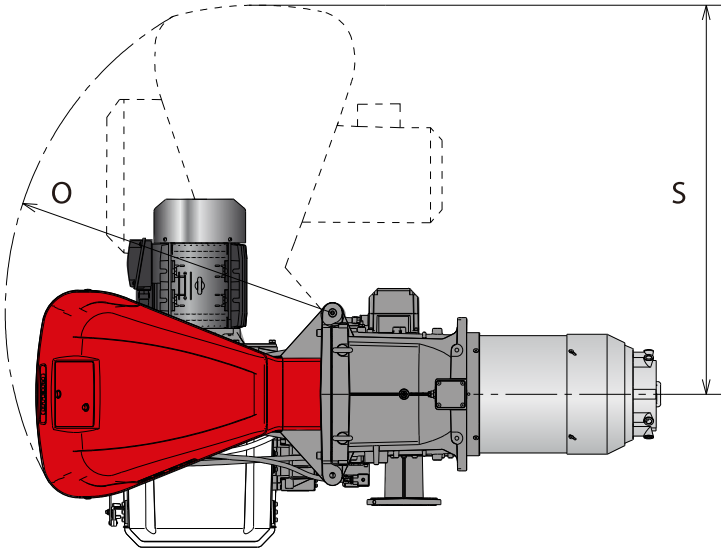
Range for Selecting Burners

Proportional Operating Range

Overall Dimensions(mm)

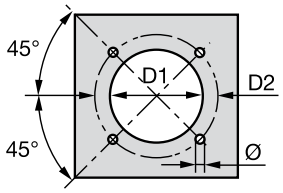






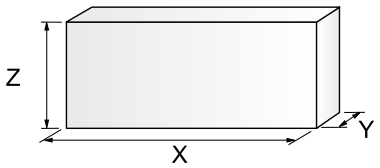
Model	A	D	E	F	G*	H	I	M	N	O	S
GDS 310/M BLU	845	890	1355	670	555	305	585	DN65	158	1065	1265
GDS 410/M BLU	885	890	1355	720	560	313	585	DN65	158	1065	1265
GDS 510/M BLU	910	890	1355	720	560	313	585	DN65	158	1065	1265
GDS 610/M BLU	980	890	1355	720	560	337	585	DN65	158	1065	1265
GDS 800/M BLU	980	890	1370	755	610	364	585	DN80	173	1075	1275

Mounting Flange



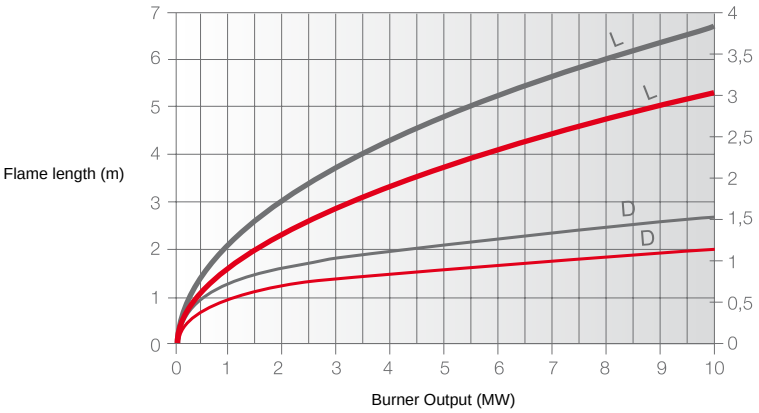
Model	D1	D2	Ø
GDS 310/M BLU	350	452	M18
GDS 410/M BLU	350	452	M18
GDS 510/M BLU	350	452	M18
GDS 610/M BLU	350	452	M18
GDS 800/M BLU	400	496	M18

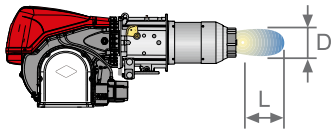
Packaging



Model	X	Y	Z	kg
GDS 310/M BLU	2240	1340	1140	245
GDS 410/M BLU	2240	1340	1140	256
GDS 510/M BLU	2240	1340	1140	270
GDS 610/M BLU	2240	1340	1140	320
GDS 800/M BLU	2240	1340	1140	350

Flame Size





Furnace Chamber Diameter (m)

Shanghai Bylindo Technology Co.,Ltd
Add:No. 168, Jindou Road, Fengxian District, Shanghai
E-mail: laixin410@gmail.com
Website: www.bylindo.com