

Grant Vortex

Burner settings



IMPORTANT NOTE FOR INSTALLERS

These instructions are intended to give an overview of the burner settings for Grant Vortex oil boilers.



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1 LOW NOX YELLOW FLAME

1.1 VORTEX PRO UTILITY AND UTILITY SYSTEM

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 1-1: Vortex Pro Utility and Utility System burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Burner head/ air disc setting	Distance D ¹⁰ (mm)	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)										
Utility 15/21 (Riello RDB2.2 BX E15/21)	15.0	51,200	0.45/80°EH	7.5	0 - 1	BX 500	Disc: B	11	1.31	65 - 70	12.5	16.0
	18.0	63,400	0.55/60°ES	7.0	0 - 1	BX 500	Disc: C	11.5	1.58	70 - 75	12.5	20.0
	21.0 *	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.84	75 - 80	12.5	23.0
Utility 15/26 Utility System 15/26 (Riello RDB2.2 BX V15/26)	15.0	51,200	0.45/80°EH	8.0	0 - 1	BX 500	Disc: B	11.5	1.25	60 - 65	12.5	16.0
	21.0 *	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.75	65 - 70	12.5	23.0
	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 500	N/A	15	2.16	75 - 80	12.5	28.5
Utility 26/36 Utility System 26/36 (Riello RDB2.2 BX V26/36)	26.0	88,700	0.75/60°ES	8.0	0 - 1	BX 700	N/A	15	2.16	65 - 70	12.5	28.5
	31.0 *	105,700	0.85/60°ES	9.0	0 - 1	BX 700	N/A	16	2.58	70 - 75	12.5	34.5
	36.0	122,800	1.00/60°ES	9.0	0 - 1	BX 700	N/A	17.5	2.99	75 - 80	12.5	39.5
Utility 36/46 Utility System 36/46 (Riello RDB2.2 BX V36/46)	36.0	122,800	1.00/60°ES	9.0	0 - 1	BX 700	N/A	17.5	3.09	75 - 80	12.5	39.5
	41.0 *	140,000	1.10/60°ES	10.0	0 - 1	BX 700	N/A	17.5	3.52	80 - 85	12.5	45.5
	46.0	157,000	1.25/60°S	8.0	0 - 1	BX 700	N/A	20	3.95	85 - 90	12.5	51.0
Utility 46/58 (Riello RDB3.2 VORT 58)	46.0	157,000	1.25/80°S	8.0	0 - 1	GIB	Head: 0	-	3.92	75 - 80	12.5	51.0
	52.0 *	177,500	1.35/80°S	9.5	0 - 1	GIB	Head: 0	-	4.43	75 - 80	12.5	58.5
	58.0	197,900	1.65/80°S	8.0	0 - 1	GIB	Head: 0	-	4.94	75 - 80	12.5	66.0
Utility 58/70 (Riello RDB3.2 VORT 70)	58.0	197,900	1.65/80°S	8.0	0 - 1	GIB	Head: 0	-	4.97	75 - 80	12.5	66.0
	64.0 *	218,300	1.65/80°S	9.5	0 - 1	GIB	Head: 0	-	5.49	75 - 80	12.5	72.5
	70.0	238,800	1.75/80°S	9.5	0 - 1	GIB	Head: 4	-	6.00	75 - 80	12.5	78.5

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

- The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
- The above settings may have to be adjusted on site for the correct operation of the burner.
- Gas Oil is NOT suitable for use with Grant Vortex boiler range
- The flue gas temperatures given above are ± 10%.
- When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
- * Factory settings: 15/21 - 21kW, 15/26 - 21kW, 26/36 - 31kW, 36/46 - 41kW, 46/58 - 52kW, 58/70 - 64kW.
- The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
- When setting the 15/21 to 15.0 or the 15/26 to 15kW, the air adjuster disc requires repositioning. Refer to Section 10.4 (air adjuster disc) in Grant UK DOC0120.
When setting the 15/26 to 26kW, the air adjuster disc is not required. Refer to Section 10.4 (air adjuster disc) in Grant UK DOC0120.
When setting the 58/70 to 70.0kW the burner head requires repositioning. Refer to Section 10 (Commissioning) in Grant UK DOC0120.
- The installer must amend the boiler data label if the output is changed.
- Refer to Section 10.2 for information on how to set Distance D (Figure 10-5) in Grant UK DOC0120.

1.2 VORTEX PRO EXTERNAL

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 1-2: Vortex Pro External burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Burner head/ air disc setting	Distance D ¹⁰ (mm)	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)										
External 15/21 (Riello RDB2.2 BX E15/21)	15.0	51,200	0.45/80°EH	7.5	0 - 1	BX 500	Disc: B	11	1.31	65 - 70	12.5	16.0
	18.0	63,400	0.55/60°ES	7.0	0 - 1	BX 500	Disc: C	11.5	1.58	70 - 75	12.5	20.0
	21.0 *	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.84	75 - 80	12.5	23.0
External 15/26 (Riello RDB2.2 BX V15/26)	15.0	51,200	0.45/80°EH	8.0	0 - 1	BX 500	Disc: B	11.5	1.25	60 - 65	12.5	16.0
	21.0 *	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.75	65 - 70	12.5	23.0
	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 500	N/A	15	2.16	75 - 80	12.5	28.5
External 26/36 (Riello RDB2.2 BX V26/36)	26.0	88,700	0.75/60°ES	8.0	0 - 1	BX 700	N/A	15	2.16	65 - 70	12.5	28.5
	31.0 *	105,700	0.85/60°ES	9.0	0 - 1	BX 700	N/A	16	2.58	70 - 75	12.5	34.5
	36.0	122,800	1.00/60°ES	9.0	0 - 1	BX 700	N/A	17.5	2.99	75 - 80	12.5	39.5
External 36/46 (Riello RDB2.2 BX V36/46)	36.0	122,800	1.00/60°ES	9.0	0 - 1	BX 700	N/A	17.5	3.09	75 - 80	12.5	39.5
	41.0 *	140,000	1.10/60°ES	10.0	0 - 1	BX 700	N/A	17.5	3.52	80 - 85	12.5	45.5
	46.0	157,000	1.25/60°S	8.0	0 - 1	BX 700	N/A	20	3.95	85 - 90	12.5	51.0
External 46/58 (Riello RDB3.2 VORT 58)	46.0	157,000	1.25/80°S	8.0	0 - 1	GIB	Head: 0	-	3.92	75 - 80	12.5	51.0
	52.0 *	177,500	1.35/80°S	9.5	0 - 1	GIB	Head: 0	-	4.43	75 - 80	12.5	58.5
	58.0	197,900	1.65/80°S	8.0	0 - 1	GIB	Head: 0	-	4.94	75 - 80	12.5	66.0
External 58/70 (Riello RDB3.2 VORT 70)	58.0	197,900	1.65/80°S	8.0	0 - 1	GIB	Head: 0	-	4.97	75 - 80	12.5	66.0
	64.0 *	218,300	1.65/80°S	9.5	0 - 1	GIB	Head: 0	-	5.49	75 - 80	12.5	72.5
	70.0	238,800	1.75/80°S	9.5	0 - 1	GIB	Head: 4	-	6.00	75 - 80	12.5	78.5

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

- The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
- The above settings may have to be adjusted on site for the correct operation of the burner.
- Gas Oil is NOT suitable for use with Grant Vortex boiler range
- The flue gas temperatures given above are ± 10%.
- When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
- * Factory settings: 15/21 - 21kW, 15/26 - 21kW, 26/36 - 31kW, 36/46 - 41kW, 46/58 - 52kW, 58/70 - 64kW.
- The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
- When setting the 15/21 and 15/26 to 15kW, the air adjuster disc requires repositioning. Refer to Section 10.4 (air adjuster disc) in Grant UK DOC0121.
When setting the 15/26 to 26kW, the air adjuster disc is not required. Refer to Section 10.4 (air adjuster disc) in Grant UK DOC0121.
When setting the 58/70 to 70kW, the combustion head must be changed. Refer to Section 10.3 (Burner Settings: RDB3.2 Burners) in Grant UK DOC0121.
- The installer must amend the boiler data label if the output is changed.
- Refer to Section 10.2 for information on how to set Distance D (Figure 10-5) in Grant UK DOC0121.

1.3 VORTEX PRO INTERNAL COMBI

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 1-3: Vortex Pro Internal Combi Burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Burner head/ air disc setting	Distance D ^s (mm)	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)										
Combi XS 26 (Riello RDB2.2 BX VC26)	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 500	N/A	15	2.19	75 - 80	12.5	28.5
Combi 21 (Riello RDB2.2 BX E15/21)	21.0	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.84	75 - 80	12.5	23.0
Combi 26 (Riello RDB2.2 BX VC26)	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 500	N/A	15	2.16	75 - 80	12.5	28.5
Combi 36 (Riello RDB2.2 BX VC36)	36.0	122,800	1.00/60°ES	9.0	0 - 1	BX 700	N/A	17.5	2.99	75 - 80	12.5	39.5

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

1. The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
2. The above settings may have to be adjusted on site for the correct operation of the burner.
3. Gas Oil is NOT suitable for use with Grant Vortex boiler range
4. The flue gas temperatures given above are ± 10%.
5. When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
6. The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
7. When commissioning the Combi 21, the position of the air adjuster disc should be checked. Refer to Section 10.3 (Air Adjuster Disc) in Grant UK DOC0122.
8. Refer to Section 10.2 for information on how to set Distance D (Figure 10-5) in Grant UK DOC0122.

1.4 VORTEX PRO OUTDOOR COMBI

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 1-4: Vortex Pro Outdoor Combi burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Burner head/ air disc setting	Distance D ⁸ (mm)	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)										
Outdoor Combi 21 (Riello RDB2.2 BX E15/21)	21.0	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.84	75 - 80	12.5	23.0
Outdoor Combi 26 (Riello RDB2.2 BX VC26)	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 500	N/A	15	2.16	75 - 80	12.5	28.5
Outdoor Combi 36 (Riello RDB2.2 BX VC36)	36.0	122,800	1.00/60°ES	9.0	0 - 1	BX 700	N/A	17.5	2.99	75 - 80	12.5	39.5

Notes:

- ‡ Flue gas VFR: Flue gas volumetric flow rate
- 1. The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
- 2. The above settings may have to be adjusted on site for the correct operation of the burner.
- 3. Gas Oil is NOT suitable for use with Grant Vortex boiler range
- 4. The flue gas temperatures given above are ± 10%.
- 5. When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
- 6. The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
- 7. When commissioning the Combi 21, the position of the air adjuster disc should be checked. Refer to Section 10.3 (Air Adjuster Disc) in Grant UK DOC0123.
- 8. Refer to Section 10.2 for information on how to set Distance D (Figure 10-5) in Grant UK DOC0123.

1.5 VORTEX ECO UTILITY AND UTILITY SYSTEM

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 1-5: Vortex Eco Utility and Utility System burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Burner head/air disc setting	Distance D ¹⁰ (mm)	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)										
Utility 15/21 Utility System 15/21 (Riello RDB2.2 BX E15/21)	15.0	51,200	0.45/80°EH	7.5	0 - 1	BX 500	Disc: B	11	1.28	70 - 75	12.5	16.0
	18.0	61,400	0.55/60°ES	7.0	0 - 1	BX 500	Disc: C	11.5	1.53	75 - 80	12.5	20.0
	21.0 *	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.79	80 - 85	12.5	23.0
Utility 21/26 Utility System 21/26 (Riello RDB2.2 BX E21/26)	21.0	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.81	85 - 90	12.5	23.0
	23.5 *	80,200	0.65/60°ES	10.0	0 - 1	BX 500	Disc: C	13	2.02	85 - 90	12.5	26.0
	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 500	N/A	15	2.24	90 - 95	12.5	28.5
Utility 26/35 Utility System 26/35 (Riello RDB2.2 BX V26/36)	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 700	N/A	15	2.24	75 - 80	12.5	28.5
	31.0 *	105,700	0.85/60°ES	9.0	0 - 1	BX 700	N/A	16	2.67	85 - 90	12.5	34.5
	35.0	119,400	1.00/60°ES	8.5	0 - 1	BX 700	N/A	17.5	3.02	90 - 95	12.5	39.0

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

- The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
- The above settings may have to be adjusted on site for the correct operation of the burner.
- Gas Oil is NOT suitable for use with Grant Vortex boiler range
- The flue gas temperatures given above are ± 10%.
- When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
- * Factory settings: 15/21 - 21kW, 21/26 - 23.5kW, 26/35 - 31kW.
- The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
- When setting the 15/21 to 15.0kW the air adjuster disc requires repositioning. Refer to Section 10.3 (air adjuster disc) in Grant UK DOC0124.
When setting the 21/26 to 26.0kW, the air adjuster disc is not required. Refer to Section 10.3 (air adjuster disc) in Grant UK DOC0124.
- The installer must amend the boiler data label if the output is changed.
- Refer to Section 10.2 for information on how to set Distance D (Figure 10-5) in Grant UK DOC0124.

1.6 VORTEX ECO EXTERNAL AND EXTERNAL SYSTEM

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 1-6: Vortex Eco External and External System burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Burner head/ air disc setting	Distance D ¹⁰ (mm)	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)										
External 15/21	15.0	51,200	0.45/80°EH	7.5	0 - 1	BX 500	Disc: B	11	1.28	70 - 75	12.5	16.0
External System 15/21 (Riello RDB2.2 BX E15/21)	18.0	61,400	0.55/60°ES	7.0	0 - 1	BX 500	Disc: C	11.5	1.53	75 - 80	12.5	20.0
	21.0 *	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.79	80 - 85	12.5	23.0
External 21/26	21.0	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.81	85 - 90	12.5	23.0
External System 21/26 (Riello RDB2.2 BX E21/26)	23.5 *	80,200	0.65/60°ES	10.0	0 - 1	BX 500	Disc: C	13	2.02	85 - 90	12.5	26.0
	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 500	N/A	15	2.24	90 - 95	12.5	28.5
External 26/35	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 700	N/A	15	2.24	75 - 80	12.5	28.5
External System 26/35 (Riello RDB2.2 BX V26/36)	31.0 *	105,700	0.85/60°ES	9.0	0 - 1	BX 700	N/A	16	2.67	85 - 90	12.5	34.5
	35.0	119,400	1.00/60°ES	8.5	0 - 1	BX 700	N/A	17.5	3.02	90 - 95	12.5	39.0

Notes:

- ‡ Flue gas VFR: Flue gas volumetric flow rate
1. The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
2. The above settings may have to be adjusted on site for the correct operation of the burner.
3. Gas Oil is NOT suitable for use with Grant Vortex boiler range
4. The flue gas temperatures given above are ± 10%.
5. When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
6. * Factory settings: 15/21 - 21kW, 21/26 - 23.5kW, 26/35 - 31kW.
7. The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
8. When setting the 15/21 to 15.0kW the air adjuster disc requires repositioning. Refer to Section 10.3 (air adjuster disc) in Grant UK DOC0125.
When setting the 21/26 to 26.0kW, the air adjuster disc is not required. Refer to Section 10.3 (air adjuster disc) in Grant UK DOC0125.
9. The installer must amend the boiler data label if the output is changed.
10. Refer to Section 10.2 for information on how to set Distance D (Figure 10-5) in Grant UK DOC0125.

1.7 VORTEX ECO INTERNAL AND INTERNAL SYSTEM WALL HUNG

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 1-7: Vortex Eco Internal Wall Hung burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Distance between nozzle and burner head	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)									
Internal and Internal System 12/16 (Ecoflam Max 1 LN Vortex WM 12-16 ERP)	12.7	40,900	0.40/80°S	7	0 - 1	EK 12-16	30.5	1.06	60 - 65	12.5	13.0
	14.0 *	47,800	0.40/80°EH	9	0 - 1	EK 12-16	31.5	1.17	65 - 69	12.5	15.0
	16.5	56,300	0.50/80°EH	8	0 - 1	EK 12-16	32.5	1.38	65 - 69	12.5	17.0
Internal and Internal System 16/21 (Ecoflam Max 1 LN Vortex WM 16-21 ERP)	16.5	56,300	0.50/80°EH	7	0 - 1	EK 16-21	29.5	1.38	65 - 69	12.5	17.0
	18.7 *	63,800	0.50/80°EH	10	0 - 1	EK 16-21	31.0	1.56	70 - 75	12.5	20.0
	21.0	71,700	0.60/80°EH	8	0 - 1	EK 16 - 21	31.0	1.76	75 - 79	12.5	23.0

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

- The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
- The above settings may have to be adjusted on site for the correct operation of the burner.
- Gas Oil is NOT suitable for use with Grant Vortex boiler range
- The flue gas temperatures given above are ± 10%.
- When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
- * Factory settings: 12/16 - 14kW, 16/21 - 18.7kW.
- The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
- The installer must amend the boiler data label if the output is changed.

1.8 VORTEX ECO EXTERNAL AND EXTERNAL SYSTEM WALL HUNG

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 1-8: Vortex Eco External Wall Hung burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Distance between nozzle and burner head	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)									
External and External System 12/16 (Ecoflam Max 1 LN Vortex WM 12-16 ERP)	12.7	40,900	0.40/80°S	7	0 - 1	EK 12-16	30.5	1.06	60 - 65	12.5	13.0
	14.0 *	47,800	0.40/80°EH	9	0 - 1	EK 12-16	31.5	1.17	65 - 69	12.5	15.0
	16.5	56,300	0.50/80°EH	8	0 - 1	EK 12-16	32.5	1.38	65 - 69	12.5	17.0
External and External System 16/21 (Ecoflam Max 1 LN Vortex WM 16-21 ERP)	16.5	56,300	0.50/80°EH	7	0 - 1	EK 16-21	29.5	1.38	65 - 69	12.5	17.0
	18.7 *	63,800	0.50/80°EH	10	0 - 1	EK 16-21	31.0	1.56	70 - 75	12.5	20.0
	21.0	71,700	0.60/80°EH	8	0 - 1	EK 16 - 21	31.0	1.76	75 - 79	12.5	23.0

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

- The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
- The above settings may have to be adjusted on site for the correct operation of the burner.
- Gas Oil is NOT suitable for use with Grant Vortex boiler range
- The flue gas temperatures given above are ± 10%.
- When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
- * Factory settings: 12/16 - 14kW, 16/21 - 18.7kW.
- The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
- The installer must amend the boiler data label if the output is changed.

1.9 VORTEX BOILERHOUSE

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 1-9: Vortex Boilerhouse burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Burner head/ air disc setting	Distance D ¹⁰ (mm)	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)										
Boilerhouse 15/21 (Riello RDB2.2 BX E15/21)	15.0	51,200	0.45/80°EH	7.5	0 - 1	BX 500	Disc: B	11	1.28	70 - 75	12.5	16.0
	18.0	61,400	0.55/60°ES	7.0	0 - 1	BX 500	Disc: C	11.5	1.53	75 - 80	12.5	20.0
	21.0 *	71,600	0.60/60°ES	8.0	0 - 1	BX 500	Disc: C	13	1.79	80 - 85	12.5	23.0
Boilerhouse 21/26 (Riello RDB2.2 BX E21/26)	21.0	71,600	0.60/60°ES	8.0	0 - 1	BX500	Disc: C	13	1.81	85 - 90	12.5	23.0
	23.5 *	80,200	0.65/60°ES	10.0	0 - 1	BX 500	Disc: C	13	2.02	85 - 90	12.5	26.0
	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 500	N/A	15	2.24	90 - 95	12.5	28.5
Boilerhouse 26/35 (Riello RDB2.2 BX V26/36)	26.0	88,700	0.75/60°ES	8.5	0 - 1	BX 700	N/A	15	2.24	75 - 80	12.5	28.5
	31.0 *	105,700	0.85/60°ES	9.0	0 - 1	BX 700	N/A	16	2.67	85 - 90	12.5	34.5
	35.0	119,400	1.00/60°ES	8.5	0 - 1	BX 700	N/A	17.5	3.02	90 - 95	12.5	39.0
Boilerhouse 36/46 (Riello RDB2.2 BX V36/46)	36.0	122,800	1.00/60°ES	9.0	0 - 1	BX 700	N/A	17.5	3.09	75 - 80	12.5	39.5
	41.0 *	139,900	1.10/60°ES	10.0	0 - 1	BX 700	N/A	17.5	3.52	80 - 85	12.5	45.5
	46.0	157,000	1.25/60°S	8.0	0 - 1	BX 700	N/A	20	3.95	85 - 90	12.5	51.0
Boilerhouse 46/58 (Riello RDB3.2 VORT 58)	46.0	157,000	1.25/80°S	8.0	0 - 1	GIB	Head: 0	-	3.92	75 - 80	12.5	51.0
	52.0 *	177,500	1.35/80°S	9.5	0 - 1	GIB	Head: 0	-	4.43	75 - 80	12.5	58.5
	58.0	197,900	1.65/80°S	8.0	0 - 1	GIB	Head: 0	-	4.94	75 - 80	12.5	66.0
Boilerhouse 58/70 (Riello RDB3.2 VORT 70)	58.0	197,900	1.65/80°S	8.0	0 - 1	GIB	Head: 0	-	4.97	75 - 80	12.5	66.0
	64.0 *	218,300	1.65/80°S	9.5	0 - 1	GIB	Head: 0	-	5.49	75 - 80	12.5	72.5
	70.0	238,800	1.75/80°S	9.5	0 - 1	GIB	Head: 4	-	6.00	75 - 80	12.5	78.5

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

1. The data given above is approximate only and is based on the boiler being used with a low level balanced flue.

2. The above settings may have to be adjusted on site for the correct operation of the burner.

3. Gas Oil is NOT suitable for use with Grant Vortex boiler range

4. The flue gas temperatures given above are ± 10%.

5. When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.

6. * Factory settings: 15/21 - 21.0kW, 21/26 - 23.5kW, 26/35 - 31.0kW, 36/46 - 41.0kW, 46/58 - 52.0kW, 58/70 - 64.0kW

7. The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.

8. When setting the 15/21 to 15.0kW the burner air adjuster disc requires repositioning, and when setting the 21/26 to 26.0kW output, the air disc must be removed. Refer to Section 10.4 (Air Adjuster Disc) in Grant UK DOC0128.

When setting the 58/70 to 70.0kW the burner head requires repositioning. Refer to Section 10 (Commissioning) in Grant UK DOC0128.

9. The installer must amend the boiler data label if the output is changed.

10. Refer to Section 10.2 for information on how to set distance D (Figure 10-7) in Grant UK DOC0128.

2 BLUEFLAME

2.1 VORTEXBLUE INTERNAL AND INTERNAL SYSTEM

! NOTE !

Burners are supplied factory set at the outputs shown.

When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 2-1: VortexBlue Internal and Internal System Burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Burner head/ air disc setting	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)									
Internal and Internal System 21 (Riello RDB2.2 BG1 BLU 21)	15.0	51,200	0.40/80°ES	9.0	0 - 1	BG1	B	1.25	65 - 75	12.0	16.0
	18.0	61,400	0.55/80°ES	8.0	0 - 1	BG1	N/A	1.50	65 - 75	12.0	20.0
	21.0 *	71,700	0.60/80°ES	8.5	0 - 1	BG1	N/A	1.75	70 - 80	12.0	23.0
Internal and Internal System 26 (Riello RDB2.2 BG2 BLU 26)	21.0	71,700	0.60/80°ES	8.5	0 - 1	BG2	N/A	1.75	60 - 65	12.0	23.0
	23.0	78,500	0.65/80°ES	8.5	0 - 1	BG2	N/A	1.91	65 - 70	12.0	25.5
	26.0 *	88,700	0.65/80°ES	10.0	0 - 1	BG2	N/A	2.16	75 - 80	12.0	28.5
Internal and Internal System 36 (Riello RDB2.2 BG3 BLU 36)	26.0	88,700	0.65/80°ES	10.0	0 - 1	BG3+	N/A	2.16	67 - 70	12.0	28.5
	31.5 *	107,500	0.85/80°ES	9.0	0 - 1	BG3+	N/A	2.62	70 - 75	12.0	34.5
	36.0	123,000	0.85/80°ES	11.0	0 - 1	BG3+	N/A	2.99	75 - 80	12.0	39.5

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

- The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
- The above settings may have to be adjusted on site for the correct operation of the burner.
- Gas Oil is NOT suitable for use with Grant Vortex boiler range
- The flue gas temperatures given above are ± 10%.
- When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
- * Factory settings: 21 - 21kW, 26 - 26kW, 36 - 31.5kW.
- When setting the 21 to 15kW, the burner air adjuster disc (Grant UK product code: Z20094349) must be fitted and positioned to disc setting B. Refer to Section 10.3 in Grant UK DOC 0129. This disc is NOT supplied with the boiler but can be obtained free-of-charge by contacting Grant UK.
- The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
- The installer must amend the boiler data label if the output is changed.

2.2 VORTEXBLUE EXTERNAL

! NOTE !

Burners are supplied factory set at the outputs shown.

When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 2-2: VortexBlue External Burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Burner head/ air disc setting	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)									
External 21 (Riello RDB2.2 BG1 BLU 21)	15.0	51,200	0.40/80°ES	9.0	0 - 1	BG1	B	1.25	65 - 75	12.0	16.0
	18.0	61,400	0.55/80°ES	8.0	0 - 1	BG1	N/A	1.50	65 - 75	12.0	20.0
	21.0 *	71,700	0.60/80°ES	8.5	0 - 1	BG1	N/A	1.75	70 - 80	12.0	23.0
External 26 (Riello RDB2.2 BG2 BLU 26)	21.0	71,700	0.60/80°ES	8.5	0 - 1	BG2	N/A	1.75	60 - 65	12.0	23.0
	23.0	78,500	0.65/80°ES	8.5	0 - 1	BG2	N/A	1.91	65 - 70	12.0	25.5
	26.0 *	88,700	0.65/80°ES	10.0	0 - 1	BG2	N/A	2.16	75 - 80	12.0	28.5
External 36 (Riello RDB2.2 BG3 BLU 36)	26.0	88,700	0.65/80°ES	10.0	0 - 1	BG3+	N/A	2.16	67 - 70	12.0	28.5
	31.5 *	107,500	0.85/80°ES	9.0	0 - 1	BG3+	N/A	2.62	70 - 75	12.0	34.5
	36.0	123,000	0.85/80°ES	11.0	0 - 1	BG3+	N/A	2.99	75 - 80	12.0	39.5

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

1. The data given above is approximate only and is based on the boiler being used with a low level flue.

2. The above settings may have to be adjusted on site for the correct operation of the burner.

3. Gas Oil is NOT suitable for use with Grant Vortex boiler range

4. The flue gas temperatures given above are ± 10%.

5. When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.

6. * Factory settings: 21 - 21kW, 26 - 26kW, 36 - 31.5kW.

7. When setting the 21 to 15kW, the burner air adjuster disc (Grant UK product code: Z20094349) must be fitted and positioned to disc setting B. Refer to Section 10.3 in Grant UK DOC 0130. This disc is NOT supplied with the boiler but can be obtained free-of-charge by contacting Grant UK.

8. The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.

9. The installer must amend the boiler data label if the output is changed.

2.3 VORTEXBLUE INTERNAL COMBI

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 2-3: VortexBlue Internal Combi Burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)								
VortexBlue Internal Combi 21 (RDB2.2 BG1 BLU 21)	21.0	71,700	0.60/80°ES	8.5	0 - 1	BG1	1.75	70 - 80	12.0	23.0
VortexBlue Internal Combi 26 (RDB2.2 BG2 BLU 26)	26.0	88,700	0.65/80°ES	10.0	0 - 1	BG2	2.16	75 - 80	12.0	28.5
VortexBlue Internal Combi 36 (RDB2.2 BG3 BLU 36)	31.5*	107,500	0.85/80°ES	9.0	0 - 1	BG3+	2.62	70 - 75	12.0	34.5
	36.0	123,000	0.85/80°ES	11.0	0 - 1	BG3+	2.99	75 - 80	12.0	39.5

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

1. The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
2. The above settings may have to be adjusted on site for the correct operation of the burner.
3. Gas Oil is NOT suitable for use with Grant Vortex boiler range
4. The flue gas temperatures given above are ± 10%.
5. When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
6. * Factory settings: Combi 36 - 31.5 kW.
7. The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
8. The installer must amend the boiler data label if the output is changed.

2.4 VORTEXBLUE EXTERNAL COMBI

! NOTE !

Burners are supplied factory set at the outputs shown.
When commissioning, the air damper must be adjusted to obtain the correct CO₂ level and the installer must amend the data label.

Table 2-4: VortexBlue External Combi Burner settings

Boiler models (burner type)	Heat output		Nozzle	Oil pressure (bar)	Smoke No.	Burner head type	Fuel flow rate (kg/h)	Flue gas temp. (°C)	CO ₂ (%)	Flue gas VFR ‡ (m ³ /hr)
	(kW)	(Btu/h)								
VortexBlue External Combi 21 (RDB2.2 BG1 BLU 21)	21.0	71,700	0.60/80°ES	8.5	0 - 1	BG1	1.75	70 - 80	12.0	23.0
VortexBlue External Combi 26 (RDB2.2 BG2 BLU 26)	26.0	88,700	0.65/80°ES	10.0	0 - 1	BG2	2.16	75 - 80	12.0	28.5
VortexBlue External Combi 36 (RDB2.2 BG3 BLU 36)	31.5*	107,500	0.85/80°ES	9.0	0 - 1	BG3+	2.62	70 - 75	12.0	34.5
	36.0	123,000	0.85/80°ES	11.0	0 - 1	BG3+	2.99	75 - 80	12.0	39.5

Notes:

‡ Flue gas VFR: Flue gas volumetric flow rate

1. The data given above is approximate only and is based on the boiler being used with a low level balanced flue.
2. The above settings may have to be adjusted on site for the correct operation of the burner.
3. Gas Oil is NOT suitable for use with Grant Vortex boiler range
4. The flue gas temperatures given above are ± 10%.
5. When commissioning, the air damper **must be** adjusted to obtain the correct CO₂ level.
6. * Factory settings: Combi 36 - 31.5 kW.
7. The combustion door test point may be used for CO₂ and smoke readings only. Do not use this test point for temperature or efficiency readings.
8. The installer must amend the boiler data label if the output is changed.



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