ERDINGER Weißbier

Draft beer serving concept for Erdinger Weissbier

(Criteria for approval, handling and serving)

Section A: Beverage wholesalers

Requirements:

- Draft beer know-how: experience in handling keg beer and proof of keg beer customers.
- Refrigerated storage room: approx. + 6°C

Procedure:

- Erdinger Weißbräu sales rep must always be provided with the name of keg beer customers.
- Erdinger Weißbräu sales rep or wholesaler organize on-site check as to whether Section B criteria are being met.
- Simultaneous check whether 30-liter or 50-liter kegs can be emptied within three days (minimum volume).
- Only firms meeting the requirements of Section B should be commissioned to install the draft beer equipment. It is recommended to use Erdinger Weißbräu's nationwide customer service team.
- Keg beer customers are to be chosen according to the criteria of Section C, and given instruction and support.

Other duties of beverage wholesalers:

- Observation of sell-by date.
- Carrier to be instructed to stand keg on its head when delivered to customer (better distribution of yeast).
- Beverage wholesaler provides Erdinger Weißbräu with regular quarterly reports on keg beer sales.
- Erdinger Weißbräu must always be informed as to when and why deliveries to keg beer customers are terminated.

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Section B: Internal and external customer service

Requirement:

- Relevant technical experience in handling weissbier
- Compliance with statutory regulations concerning draft beer equipment

Materials:

- **Tube material** 7 mm diameter (10 mm diameter for lengths of 12 m and over): Cornelius "hard polyethylene beer tubing" - 7 mm (10 mm).
- **Keg head** with Erdinger Weißbräu basket fitting.
- **Compensator faucet** Cornelius BT 100, BT 2000.
- **Python** with tight-fitting and sufficiently thick insulation (H13 or H19 strengths), e.g. from Python company.
- **Cooling unit** and/or **cooling coils** with temperature and water level display (operating temperature + 3°C) e.g. by Cornelius or Selbach.

	Bar tapping		Cellar tapping	
	cooled	**uncooled**	**cooled**	**uncooled**
Cooling unit	no	no	yes	no
Coiling coils	no	yes	no	no
Coiling coils with cooling unit	no	no	no	yes
Line diameter up to 8 m	7 mm	7 mm	7 mm	7 mm
Line diameter over 8 m			10 mm	10 mm

Coiling coils with cooling unit must always be used with a keg cooler!

Cleaning

Beer line should be cleaned mechanically once a week, or at least once a fortnight. A beer line cleaning unit (e.g. by Bevi) should be permanently installed. Chemical cleaning is recommended at least every two months. It should be carried out by a specialist company.

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Instructions for correct pressure setting:

In accordance with statutory regulations in Germany, the unit must be able to withstand pressures of up to 3 bar.

Example:

Cellar tapping, tube diameter 7 mm, line length 6 m, height difference 3 m.

- An Erdinger Weissbier keg has a **carbonation pressure** of about 1.7 bar at + 6°C. The CO_2 content is some 6.5 g per liter (see CO_2 diagram).
- A **friction loss** of 0.3 bar is calculated for a line length of 6 m (about 0.1 bar per 2m length).
- An additional **pressure loss** of 0.3 bar is calculated for the height difference of 3 m (about 0.1 bar per 1m height).
- **Safety factor** 0.2 bar.
- A beer temperature of +8° C, therefore, should produce the following manometer setting:

1.7 bar	+	0.3 bar	+	0.3 bar	+	0.2 bar	=	**2.5 bar**
Carbonation		Friction loss		Pressure loss		Safety factor		

Over-carbonation:

Over-carbonation results from the additional dissolving of CO_2 in the beer during longer breaks in dispensing (e.g. in club houses, discos or with automatic dispensing units). A sure sign of this is heavy beer foaming (fine-pore froth). In order to avoid over-carbonation (= additional CO_2), a mixed gas (70% N_2 and 30% CO_2) is recommended, e.g. Aligal 13 by Air Liquide.

For further information, please contact Erdinger Weißbräu, dispensing technology department,
Tel.: +49 81 22/4 09-6 84, -6 86 or -3 52.

Enclosures:

- Carbonation level in relation to temperature for Erdinger Weissbier
- Data for Aligal 13
- Data for CO_2 bottles

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Section C: Dispensing

Requirement:

- All legal regulations concerning the operation of beer dispensing units must be observed.
- Beer cooling unit with automatic temperature regulation of approx. + 6°C to + 8°C (maximum beer temperature of + 18°C when using cooling coils).
- Storage room for pressurized gas bottles (CO_2 or N_2 /CO_2 mix) with safety mountings, ventilation equipment or gas warning system.
- Water supply and drain near keg tapping area.
- Beer should be served within sight of customer, in accordance with statutory regulations.

Procedure:

- Store kegs on their heads and turn over for tapping (keg should be completely emptied within three days).
- Dispensing unit to be approved by official expert.
- Check dispensing pressure (normally 2.0 to 2.7 bar; not more than 3 bar).
- Keep dispensing book (for entering all cleaning and modifications).
- Carry out regular mechanical cleaning. Once weekly where possible, at least once a fortnight. Keep record in dispensing book.
- After longer period of inactivity (e.g. holiday), always clean all lines before starting operation again. If particularly dirty (and at least every two months), have the lines cleaned chemically by specialist company. All faucets and tapping equipment must also be cleaned!
- Use extra-long brushes in the basins.
- In order to improve head stability, use special cleaning agents e.g. Becharein by Dr. Becher. (Under no circumstances use standard washing-up liquid. The same applies to glass-washing machines).
- Always rinse glasses in cold water before pouring.
- Set compensator faucet to desired flow speed.
- Hold glass at an angle and near to faucet while pouring. Quickly fill glass completely (the more often the glass has to be topped up, the more carbon dioxide the beer loses).

Additional tip

Ask beverage wholesaler for local gas suppliers (N_2/CO_2 mix).

Further inquiries:

Should you have any further questions, please contact your local Erdinger Weißbräu sales rep or the technical customer service department of Erdinger Weißbräu, Tel.: +49 81 22/4 09-6 84, -6 86 or -3 52.

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Data for Aligal 13 (30% CO_2 + 70% N_2)

	Small bottle	Large bottle
Content	20 liters (4.5 cbm)	50 liters (10.8 cbm)
Height	90 cm	160 cm
Diameter	20 cm	22 cm
Weight when full	35 kg	70 kg
Beer volume per 1 cbm	250 liters	250 liters
Beer volume per bottle	1,125 liters = approx. 35 kegs (30 liters) = approx. 21 kegs (50 liters)	2,700 liters = approx. 90 kegs (30 liters) = approx. 54 kegs (50 liters)

Costs (plus sales tax)

Per 100 liters of beer with mixed gas	approx. 3.23 EUR
1 x 20 liter bottle of mixed gas	approx. 40.39 EUR

Improved pouring characteristics (little over-frothing, less residue in the keg) can reduce tapping losses by approx. 3 %.

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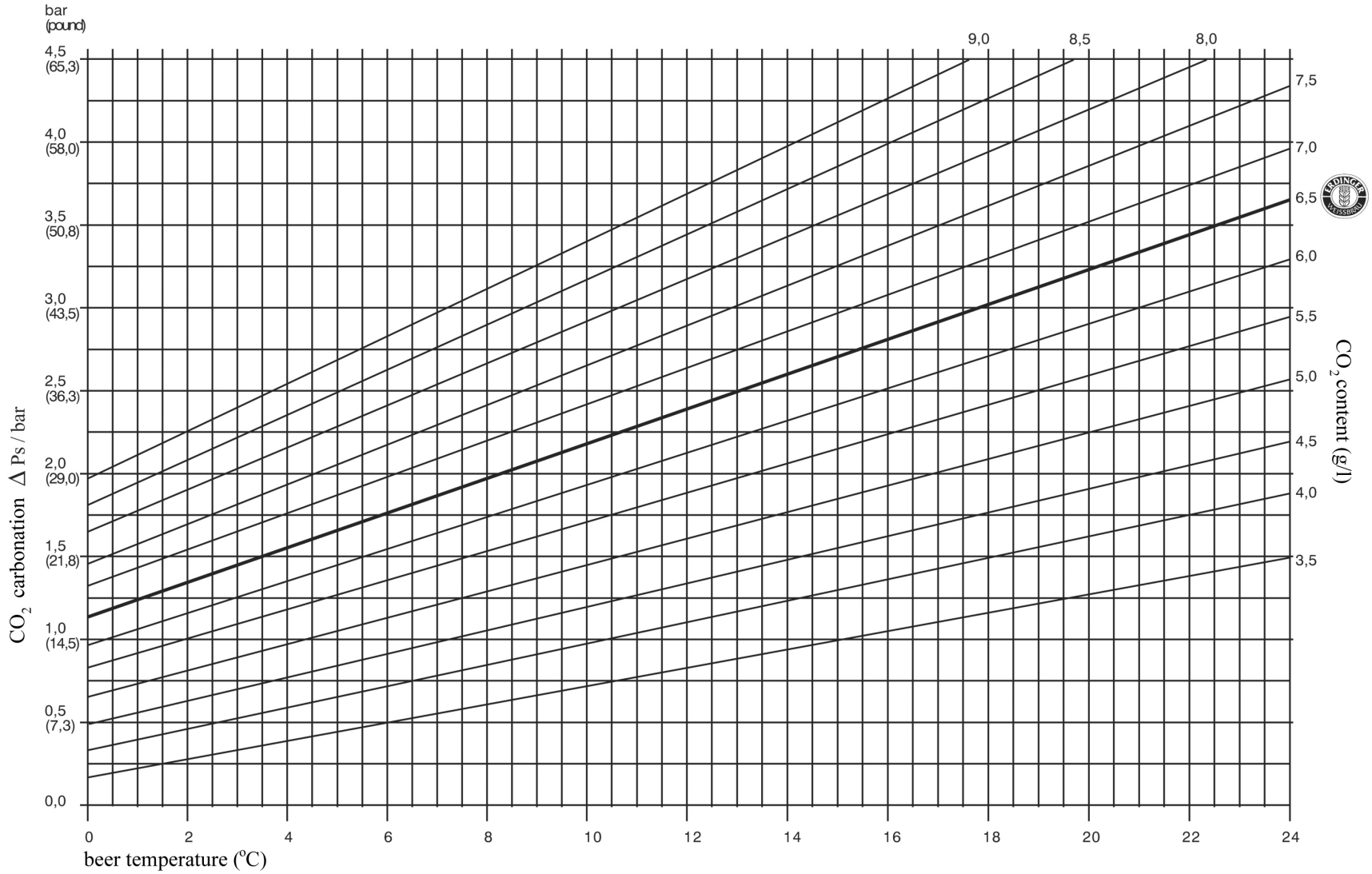
Carbonation of beer in relation to temperature for Erdinger Weissbier



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Data for CO_2 bottles (100% CO_2)

	CO_2 bottle
Content	10 kg
Height	74 cm or 120 cm
Diameter	20 cm or 15 cm
Weight when full	23 – 35 kg (steel or aluminum)
Dispensing volume per bottle	1,334 liters = approx. 44 kegs (30 liters) = approx. 26 kegs (50 liters)

Costs (plus sales tax)

Per 100 liters of beer with carbon dioxide	approx. 1.70 EUR
1 x 10 kg bottle of carbon dioxide	approx. 23.00 EUR

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Pressure setting for Erdinger Weissbier (keg)

beer temperature in the keg	pressure in the keg	length of beer line (2m = 0,6 psi)	Compen-sator tap	CO^2	pressure for CO^2	mixed gas	pressure for mixed gas	5 meters	10 meters	15 meters	20 meters	25 meters	30 meters	35 meters
37,4 °F	21,0 psi	0,6 psi	yes	**no**		**yes**	**22,0 psi**	**23,1 psi**	**24,6 psi**	**26,1 psi**	**27,6 psi**	**29,1 psi**	**30,6 psi**	**32,1 psi**
39,2 °F	23,0 psi	0,6 psi	yes	**no**		**yes**	**24,0 psi**	**25,1 psi**	**26,6 psi**	**28,1 psi**	**29,6 psi**	**31,1 psi**	**32,6 psi**	**34,1 psi**
41,0 °F	25,0 psi	0,6 psi	yes	**no**		**yes**	**26,0 psi**	**27,1 psi**	**28,6 psi**	**30,1 psi**	**31,6 psi**	**33,1 psi**	**34,6 psi**	**36,1 psi**
42,8 °F	26,0 psi	0,6 psi	yes	**no**		**yes**	**27,0 psi**	**28,1 psi**	**29,6 psi**	**31,1 psi**	**32,6 psi**	**34,1 psi**	**35,6 psi**	**37,1 psi**
44,6 °F	27,0 psi	0,6 psi	yes	**no**		**yes**	**28,0 psi**	**29,1 psi**	**30,6 psi**	**32,1 psi**	**33,6 psi**	**35,1 psi**	**36,6 psi**	**38,1 psi**
46,4 °F	28,0 psi	0,6 psi	yes	**no**		**yes**	**29,0 psi**	**30,1 psi**	**31,6 psi**	**33,1 psi**	**34,6 psi**	**36,1 psi**	**37,6 psi**	**39,1 psi**
48,2 °F	29,0 psi	0,6 psi	yes	**yes**	**29,6 psi**	**no**		**30,8 psi**	**32,3 psi**	**33,8 psi**	**35,3 psi**	**36,8 psi**	**38,3 psi**	**39,8 psi**
50,0 °F	31,0 psi	0,6 psi	yes	**yes**	**31,6 psi**	**no**		**32,8 psi**	**34,3 psi**	**35,8 psi**	**37,3 psi**	**38,8 psi**	**40,3 psi**	**41,8 psi**
51,8 °F	33,0 psi	0,6 psi	yes	**yes**	**33,6 psi**	**no**		**34,8 psi**	**36,3 psi**	**37,8 psi**	**39,3 psi**	**40,8 psi**	**42,3 psi**	**43,8 psi**
53,6 °F	35,0 psi	0,6 psi	yes	**yes**	**35,6 psi**	**no**		**36,8 psi**	**38,3 psi**	**39,8 psi**	**41,3 psi**	**42,8 psi**	**44,3 psi**	**45,8 psi**
55,4 °F	36,0 psi	0,6 psi	yes	**yes**	**36,6 psi**	**no**		**37,8 psi**	**39,3 psi**	**40,8 psi**	**42,3 psi**	**43,8 psi**	**45,3 psi**	**46,8 psi**
57,2 °F	38,0 psi	0,6 psi	yes	**yes**	**38,6 psi**	**no**		**39,8 psi**	**41,3 psi**	**42,8 psi**	**44,3 psi**	**45,8 psi**	**47,3 psi**	**48,8 psi**
59,0 °F	39,0 psi	0,6 psi	yes	**yes**	**39,6 psi**	**no**		**40,8 psi**	**42,3 psi**	**43,8 psi**	**45,3 psi**	**46,8 psi**	**48,3 psi**	**49,8 psi**
60,8 °F	40,0 psi	0,6 psi	yes	**yes**	**40,6 psi**	**no**		**41,8 psi**	**43,3 psi**	**44,8 psi**	**46,3 psi**	**47,8 psi**	**49,3 psi**	**50,8 psi**
62,6 °F	42,0 psi	0,6 psi	yes	**yes**	**42,6 psi**	**no**		**43,8 psi**	**45,3 psi**	**46,8 psi**	**48,3 psi**	**49,8 psi**	**51,3 psi**	**52,8 psi**
64,4 °F	43,0 psi	0,6 psi	yes	**yes**	**43,6 psi**	**no**		**44,8 psi**	**46,3 psi**	**47,8 psi**	**49,3 psi**	**50,8 psi**	**52,3 psi**	**53,8 psi**
66,2 °F	45,0 psi	0,6 psi	yes	**yes**	**45,6 psi**	**no**		**46,8 psi**	**48,3 psi**	**49,8 psi**	**51,3 psi**	**52,8 psi**	**54,3 psi**	**55,8 psi**
68,0 °F	46,0 psi	0,6 psi	yes	**yes**	**46,6 psi**	**no**		**47,8 psi**	**49,3 psi**	**50,8 psi**	**52,3 psi**	**53,8 psi**	**55,3 psi**	**56,8 psi**
69,8 °F	48,0 psi	0,6 psi	yes	**yes**	**48,6 psi**	**no**		**49,8 psi**	**51,3 psi**	**52,8 psi**	**54,3 psi**	**55,8 psi**	**57,3 psi**	**58,8 psi**
71,6 °F	49,0 psi	0,6 psi	yes	**yes**	**49,6 psi**	**no**		**50,8 psi**	**52,3 psi**	**53,8 psi**	**55,3 psi**	**56,8 psi**	**58,3 psi**	**59,8 psi**
73,4 °F	50,0 psi	0,6 psi	yes	**yes**	**50,6 psi**	**no**		**51,8 psi**	**53,3 psi**	**54,8 psi**	**56,3 psi**	**57,8 psi**	**59,3 psi**	**60,8 psi**
75,2 °F	52,0 psi	0,6 psi	yes	**yes**	**52,6 psi**	**no**		**53,8 psi**	**55,3 psi**	**56,8 psi**	**58,3 psi**	**59,8 psi**	**61,3 psi**	**62,8 psi**
77,0 °F	53,0 psi	0,6 psi	yes	**yes**	**53,6 psi**	**no**		**54,8 psi**	**56,3 psi**	**57,8 psi**	**59,3 psi**	**60,8 psi**	**62,3 psi**	**63,8 psi**
78,8 °F	55,0 psi	0,6 psi	yes	**yes**	**55,6 psi**	**no**		**56,8 psi**	**58,3 psi**	**59,8 psi**	**61,3 psi**	**62,8 psi**	**64,3 psi**	**65,8 psi**
80,6 °F	56,0 psi	0,6 psi	yes	**yes**	**56,6 psi**	**no**		**57,8 psi**	**59,3 psi**	**60,8 psi**	**62,3 psi**	**63,8 psi**	**65,3 psi**	**66,8 psi**
82,4 °F	58,0 psi	0,6 psi	yes	**yes**	**58,6 psi**	**no**		**59,8 psi**	**61,3 psi**	**62,8 psi**	**64,3 psi**	**65,8 psi**	**67,3 psi**	**68,8 psi**