CONTENTS

AUTOMATED DONUT PRODUCTION

Automation offers improved quality and greater consistency compared to manual operations. Automation also reduces labor cost and increases employee satisfaction. Belshaw has spent over 40 years developing automated systems, with improvements being added each year. The result: producing high quality, fresh donuts is now easier than ever.

DEPOSITING

PROOFING

FRYING

GLAZING

ICING

SCREEN LOADING

COOLING
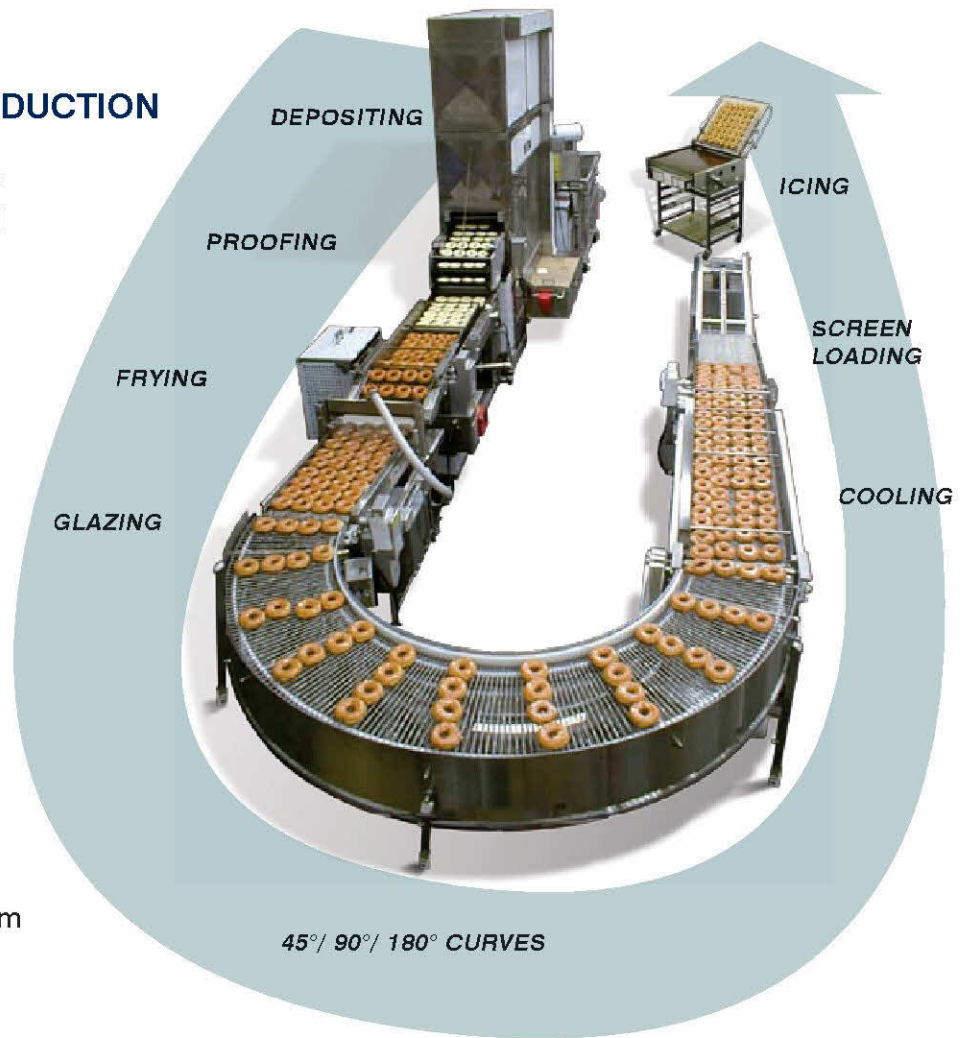
45°/ 90°/ 180° CURVES

CENTURY System
(Century C6-16)

FEATURES OF CENTURY AUTOMATION:

❑ **Modular design** – choose each component according to your production needs.

❑ **More layouts** to meet your space requirements – choose from straight-line, three-sided, 45°, 90° and 180° curve configurations.

❑ **Exhibition-style** production. Rows of donuts filling the fryer, moving through a curtain of glaze, advancing around a curved conveyor – all add an extra dimension to the customer experience you provide.

❑ **Multiple turners,** quickly engaged or disengaged, make it easier to produce of a wider variety of donuts.

❑ **Digital controls and displays** for better performance and usability, alongside a "keep it simple" approach of using robust time-proven systems.

❑ **Dust-free proofing –** Dusting donuts with flour is eliminated – so is the unwanted intrusion of excess flour into the frying process.

❑ **Energy efficiency –** Belshaw's unique "Controlled Combustion" technology improves energy efficiency.

❑ **First-class service –** Our after-sale service draws on experience from hundreds of successful Century installations to provide you with fast, knowledgeable assistance.

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CENTURY SYSTEM SIZE & CAPACITY

SYSTEM	Pre-2008 name (or equivalent)	PRODUCTION RATE* (for more detail see page 5)
C6-8	C100	76 Doz/hr
C6-16	C200	142 Doz/hr
C6-24	C300	213 Doz/hr
C10-16	C400	278 Doz/hr
C10-24	C600	421 Doz/hr
C10-36	C800	562 Doz/hr
C14-24	(new)	618 Doz/hr

* NOTE: Production rates assume full capacity and should be considered as estimates. Production rates are estimated at a frying time of 110 seconds, using standard pocket spacings of 4" for standard donuts, and one turner. Production rates will vary according to frying time, the size of your donuts, the number of turners, the pocket spacing of the fryer and the percentage of capacity achieved in operation. Always consult a Belshaw industrial sales manager to estimate production rates based on your expected conditions.

PRODUCT VARIETIES

Cake donuts

Raised donuts
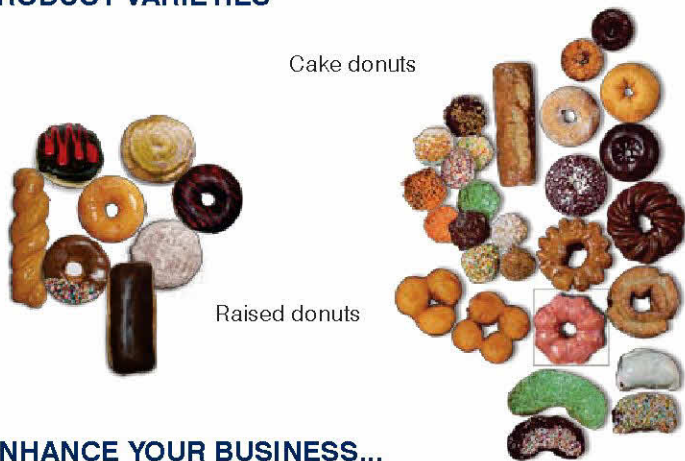
ENHANCE YOUR BUSINESS...

Commissaries, wholesalers and exhibition-style bakeries in over 25 countries use the Century system to enhance sales, simplify production and reduce costs. Wherever you find donuts, you'll find Century – the method preferred by high quality donut producers, and backed by Belshaw's decades of specialization in donut production machinery.
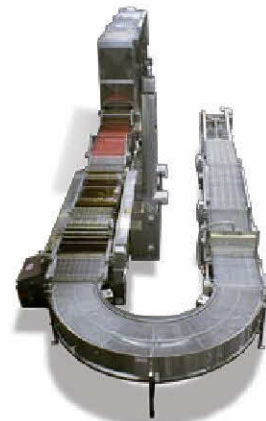
LAYOUTS

❏ *Straightline*

❏ *180° Curve*

❏ *45° and 90° Curves*

Belshaw's Century Fryer series, an industry standard for decades, provides the flexibility and durability required to produce a variety of donuts and other baked goods repeatedly over many years.

The Century Fryer line is designed to meet the diverse needs of today's bakers. With seven fryer sizes and options like multiple turners, submergers, and various flight spacings, Belshaw can configure a state-of-the-art fryer that closely matches your production needs.

New Century Fryer designations

From 2008, Century Fryer designations represent the frying area of each fryer:

Fryer	Frying area	Pre-2008
C6-8	6' x 8" (1.83m x 20cm)	C100
C6-16	6' x 16" (1.83m x 41cm)	C200
C6-24`	6' x 24" (1.83m x 61cm)	C300
C10-16	10' x 16" (3.05m x 41cm)	C400
C10-24	10' x 24" (3.05m x 61cm)	C600
C10-36	10' x 36" (3.05m x 91cm)	C800
C14-24	14' x 24" (4.27m x 61cm)	(New)

Above: Century 10-24G pre-mix gas fryer with integrated hood and hoist

Century Fryer Features

ALL CENTURY FRYERS

- Stainless steel construction throughout
- Variable speed conveyor drive, synchronized with proofer or cake donut depositor
- Moving drop plate to permit cake donuts to float immediately after depositing
- 3", 3.5", 4", or 4.5" center-to-center pocket spacings, with 3/8 inch (9.5mm) diameter flight bars.
- Single turner (2 or 3 turners optional on purchase). Extra turners can be inserted or removed in seconds.
- Slide-in shortening melter for easy loading of shortening blocks (except C6-8 –vertical melter).
- Removable conveyor
  - Models C10-24 and larger: Powered raise with hoist
  - Models C10-16 and smaller: Manual raise
- Exit chute / conveyor:
  - Models C10-24 and larger: Exit conveyor
  - Models C10-16 and smaller: Exit chute (standard), or exit conveyor (optional)
- PLC controls with wired remote console up to 75 ft (22m) from fryer (C6-24 and larger).
- Ventilation hood supported by fryer (optional on C10-24 and larger)
- Partial submerger (for rolling ball shaped donuts, optional)
- Fryers can be ordered to flow left-right or right-left. See illustration on page 7. (C10-24 and larger)

CENTURY GAS FRYERS

- Two temperature zones, independently controlled
- All gas fryers incorporate digital controls and display.
- Submerged burner tubes with patented turbulators and radiation deflectors for efficient heat transfer
- Cool zone under burner tubes
- Exhaust damper system to optimize air flow, including stack, heat shield, barometric damper, draft inducer, and proving switch
- Safety features:
  - High temp cut-off switch
  - High/low gas pressure cut-off
  - High/low air flow cut-off
  - Pilot sensor
  - Liquid level safety switch
- Models C10-24 and higher: industrial pre-mix gas system

CENTURY ELECTRIC FRYERS

- Heavy-duty, low watt-density elements
- Elements tilt up in seconds for easy kettle rinse-out or cleaning.
- Two independently controlled temperature zones (C10-16 and higher).
- Removable kettle
- Safety features:
  - High temp cut-off switch
  - Liquid level safety switch

For a summary table of choices and options on all fryers, see page 7 of the Century Donut System Guide.

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FRYER SIZES

FRYER MODEL (Either gas or electric)	Pre-2008 equivalent	FRYING AREA			FRYER CAPACITY (Standard size donuts, at 110sec. frying time (SEE NOTE BELOW)		
		Plan of frying area	Frying Length	Frying Width	Std. Donuts per pocket		Production rate
C6-8	C100		6' (1.83m)	8" (20cm)	2	◎◎	**76** doz/hr
C6-16	C200		6' (1.83m)	16" (41cm)	4	◎◎◎◎	**142** doz/hr
C6-24	C300		6' (1.83m)	24" (61cm)	6	◎◎◎◎◎◎	**213** doz/hr
C10-16	C400		10' (3.05m)	16" (41cm)	4	◎◎◎◎	**278** doz/hr
C10-24	C600		10' (3.05m)	24" (61cm)	6	◎◎◎◎◎◎	**421** doz/hr
C10-36	C800		10' (3.05m)	36" (91cm)	8	◎◎◎◎◎◎◎◎	**562** doz/hr
C14-24	(new)		14' (4.27m)	24" (61cm)	6	◎◎◎◎◎◎	**618** doz/hr

NOTE: Production rates assume full capacity and should be considered as estimates only. Production rates are estimated at a frying time of 110 seconds, using standard pocket spacings of 4" for standard donuts, and one turner. Production rates will vary according to frying time, the size of your donuts, the number of turners, the pocket spacing of the fryer and the percentage of capacity achieved in operation. Always consult a Belshaw industrial sales manager to estimate production rates based on your expected conditions.
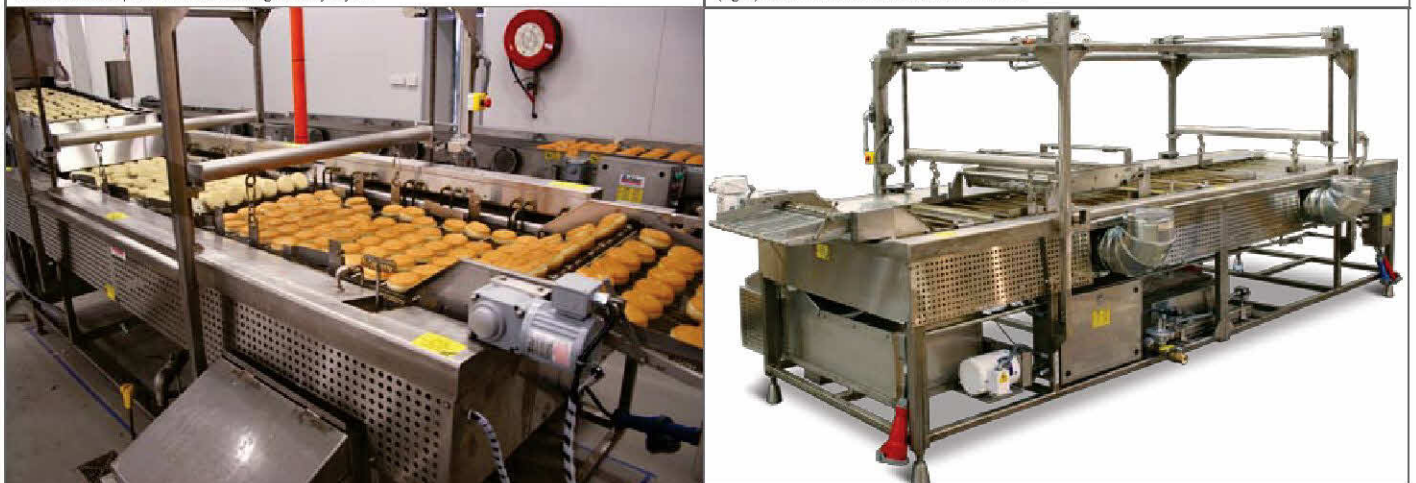

MODEL C6-8 — 6 ft. fryer, 2 standard donuts per pocket, shown with MD-2 cake donut depositor. C6-8 is electric only.

MODEL C6-16 — 6 ft. long fryer, 4 standard donuts per pocket, frying raised. donuts (right). Gas and electric models available.

MODEL C6-24 — 6 ft. fryer, 6 standard donuts per pocket, shown at right with MDDRF-6 cake donut depositor. C6-24 is a gas-only fryer.

MODEL C10-16 — 6 ft. long fryer, 4 standard donuts per pocket, frying raised donuts (right). Gas and electric models available.

MODEL C10-24 — 10 ft. fryer, 6 standard donuts per pocket, part of a donut system frying raised donuts. Gas and electric models available.

MODEL C14-24 — 14 ft. fryer, 6 std donuts per pocket, with conveyor hoist standard. All models C10-24 and higher (gas and electric) incorporate this design and appear similar.

Pocket Spacing

Donuts or other products are conveyed by round flight bars spaced either 3"(76mm), 3.5"(89mm), 4"(102mm) or 4.5"(114mm) from center-to-center. Subtract the width of a flight bar (3/8"/10mm) to determine the exact space between flight bars.

Multiple Turners

Standard conveyor includes one turner. One or two additional turners (e.g. for french crullers) may be optionally installed when ordering. Removable turners can be inserted or removed quickly without tools.

Feed Table **(A)**

In cases where a rack proofer (or no proofer at all) is used, a synchronized Feed Table loads raised donuts into the fryer. (See page 32 for more Feed Table information)

Transfer Conveyor **(B)**

The Transfer Conveyor enables rapid changeover between cake and raised donut production without needing to move the proofer. At changeover, the cake donut depositor is exchanged with the transfer conveyor, (see page 22 for more information on the Transfer Conveyor).

Conveyor Removal **(C)**

Fryers C10-24 and larger fryers incorporate electrically powered hoist as standard. Hoist brackets are optional on fryers up to C10-16.

Exit Chute / Exit Conveyor **(D)**

Exit chute (standard on fryers up to C10-16) drops donuts onto the glazing and cooling line.

Exit conveyor (optional on fryers up to C10-16) transfers donuts while keeping each row in line on wire-belt conveyor.

Fryers C10-24 and higher incorporate standard **Integrated conveyor**.

Submerger **(E)**

A specialized conveyor submerges and guides ball-shaped donuts under the shortening. The submerger extends approximately two feet and browns the donuts over most or all of their surface. It retracts in seconds to change back to normal frying. Available with 6-wide and 8-wide fryers.

Control panel options **(F)**

Control panels vary. A wired remote control console is available with C6-24 and larger fryers. These include precise controls for the fryer and synchronization controls for other components. Remote consoles may be located up to 75 feet (22m) from fryer.

Other controls are shown at right.

(A) Feed table with cloth | Feed table in operation

(B) Transfer conveyor | Transfer conveyor in operation

(C) Electric powered hoist | Hoist brackets

(D) Exit chute | Exit conveyor | Integrated conveyor

(E) Submerger | Submerger with ball donuts

(F) C6-16G fryer control panel | Digital/Analog Remote console | Remote console with PLC

PLC panel | Digital-Analog control panel | C6-8 analog panel

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Important: When exact specifications are required for configuring your donut production system, please consult your Belshaw industrial sales manager for dimensions and electrical data based on your fryer characteristics. The specifications below are intended as a guide only.

Century Electric Fryer
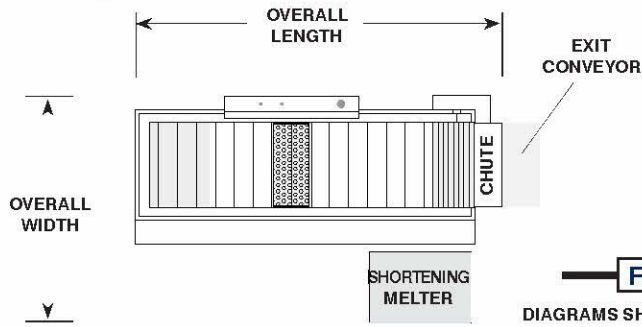
Century Gas Fryer
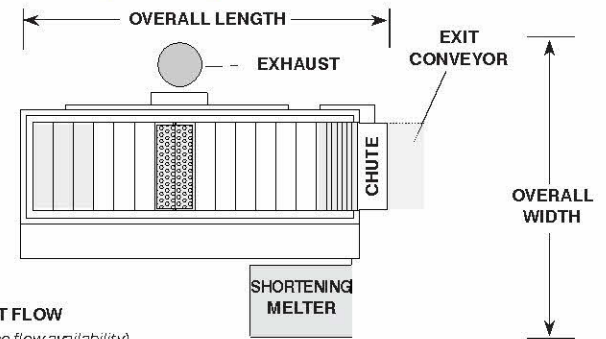
FLOW

DIAGRAMS SHOW LEFT-RIGHT FLOW
(See Options table below for reverse flow availability)

Century Fryer Dimensions & Power

MODEL	TYPE	OVERALL HEIGHT	OVERALL LENGTH[2]	OVERALL WIDTH	APPROX SHORTENING CAPACITY	APPROX SHIPPING WEIGHT	ELECTRICAL 208/240V 50/60hz 1ph	208/240V 50/60hz 3ph	380/440V 50/60hz 3ph	GAS BTU/hr	Inlet dia.
C6-8	Electric	42" (105cm)	72" (183cm)	41" (103cm)	110lbs (50kg)	420lbs (191kg)	58/66 A	33/38 A	17/20 A		
C6-16E	Electric	42" (105cm)	72" (183cm)	55" (140cm)	188lbs (85kg)	545lbs (248kg)	100/115 A	59/68 A	32/37 A		
C6-16G	Gas	42" (105cm)	72" (183cm)	70" (178cm)	346lbs (157kg)	630lbs (286kg)	5 A			188,000	1" NPT
C6-24G	Gas	42" (105cm)	72" (183cm)	75" (159cm)	700lbs (318kg)	1020lbs (464 kg)	7.5 A			200,000	1" NPT
C10-16E	Electric	43" (196cm)	130" (330cm)	55" (140cm)	478lbs (217kg)	1200lbs (545kg)		118/135 A	66/76 A		
C10-16G	Gas	43" (196cm)	130" (330cm)	70" (178cm)	600lbs (272kg)	1600lbs (727kg)	10 A	10 A	10 A	350,000	1" NPT
C10-24E	Electric	77" (196cm)[1]	130" (330cm)	67" (170cm)	675lbs (306kg)	2000lbs (909kg)		184/212 A	100/115 A		
C10-24G	Gas	77" (196cm)[1]	130" (330cm)	80" (203cm)	1250lbs (568kg)	2500lbs (1136kg)	10 A	55 A	34 A	360,000	1" NPT
C10-36E	Electric	77" (196cm)[1]	130" (330cm)	82" (208cm)	1013lbs (460kg)	3000lbs (1364kg)		230/265 A	128/147 A		
C10-36G	Gas	77" (196cm)[1]	130" (330cm)	95" (241cm)	1875lbs (852kg)	3750lbs (1705kg)	15 A	55 A	34A	565,000	1" NPT
C14-24E	Electric	77" (196cm)[1]	178" (452cm)	67" (170cm)	945lbs (430kg)	2800lbs (1273kg)		184/212 A	100/115 A		
C14-24G	Gas	77" (196cm)[1]	178" (452cm)	80" (203cm)	1750lbs (795kg)	3500lbs (1591kg)	10 A	55 A	34 A	505,000	1" NPT

Note 1: 77" height includes integrated hoist, but not hood   Note 2: For fryers up to C10-16, add 16" (41cm) if and exit conveyor is supplied

Century Fryer Options Summary   ✓ Standard   + Optional

CENTURY MODEL →		C6-8 Electric	C6-16E Electric	C6-16G Gas	C6-24G Gas	C10-16E Electric	C10-16G Gas	C10-24E Electric	C10-24G Gas	C10-36E Electric	C10-36G Gas	C14-24E Electric	C14-24G Gas
SHORTENING MELTER	Upright	✓											
	Slide-in		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DROP PLATE	Stationary	✓	✓	✓									
	Moving		+	+	✓	✓	✓	✓	✓	✓	✓	✓	✓
EXIT METHOD	Chute	✓	✓	✓	✓	✓	✓						
	Conveyor		+	+	+	+	+	✓	✓	✓	✓	✓	✓
SUBMERGER	Conveyor-type, partial				+	+	+	+	+	+	+	+	+
CONTROL PANEL	Analog controls	✓	✓										
	Digital + analog controls		+			✓	✓						
	Digital controls			✓	✓								
	PLC + remote console							✓	✓	✓	✓	✓	✓
TURNERS	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	2		+	+	+	+	+	+	+	+	+	+	+
	3		+	+	+	+	+	+	+	+	+	+	+
SPACING	3" (76mm)	+	+	+	+	+	+	+	+	+	+	+	+
	3.5" (89mm)	+	+	+	+	+	+	+	+	+	+	+	+
	4" (102mm)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	4.5" (114mm)	+	+	+	+	+	+	+	+	+	+	+	+
HEAT	Heat zones	1	1	2	2	2	2	2	2	2	2	2	2
	Electric	✓	✓			✓		✓		✓		✓	
	Gas - atmospheric			✓	✓		✓						
	Gas - pre-mixed								✓		✓		✓
FLOW (See diagram above for explanation)	Left - Right (standard)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Right - Left (reverse)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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