QUATTROFLOW™
Fluid Systems
QuattroTec Series

Expert Solutions for Hygienic Applications

QuattroTec
Quaternary Diaphragm Pumps

Where Innovation Flows

QUATERNARY DIAPHRAGM PUMPS

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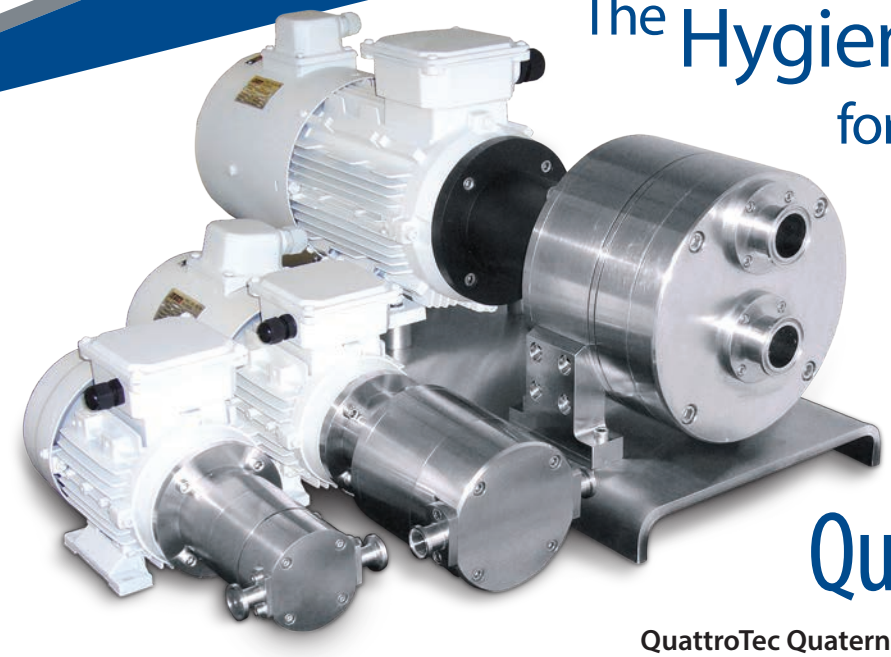


The Hygienic Pump Choice for Accurate Flow and Wide Flow Range

QuattroTec Series

QuattroTec Quaternary Diaphragm Pumps are electrically driven and truly unique in its concept. Its operation mimics that of the human heart, which is the perfect technology for the safe, reliable and efficient transfer of liquids. The 4-piston diaphragm/valves combination enables gentle pumping like soft heartbeats. Each stroke is derived by an eccentric shaft connected to an electric motor.

Low-friction, low-shear and low pulsation are characteristics, which make QuattroTec ideal for critical applications handling with shear sensitive and expensive ingredients requiring precise flow, high turndown and accurate dosing in a hermetically sealed environment, coupled with the **ability of transferring CIP media with the same pump.**

Markets Served, Features & Benefits

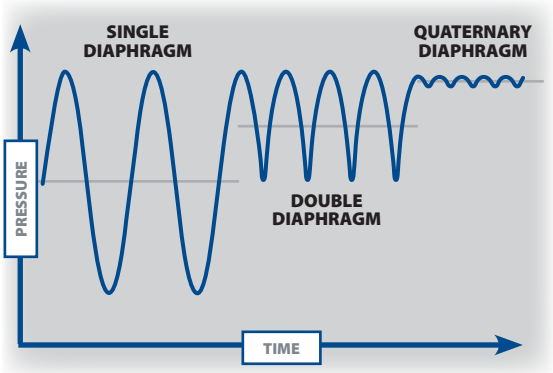
Applications and Products:

- Food and beverage (concentrates, flavors, proteins, aromas, colorants)
- Perfumes, personal care, cosmetic (extracts, serums, fragrances, diverse components)
- Enteral nutrition
- Functional and baby food
- Additivities and enzymes
- Liquid yeast
- Life ingredients
- Liquid transfer, inline dosing, proportional blending, dispensing

Features & Benefits:

- Flow control
- High turn-down
- Low pulsation
- Dosing accuracy
- Suction lift capability
- Low shear/slip
- Dry run safe
- Hermetic containment
- Compact footprint
- Seal-less design
- Self-priming
- CIP/SIP capability
- Accurate flow and CIP with the same pump
- FDA 21CFR177 complied

Low Pulsation



Dispensing Accuracy

	Dispensing Accuracy (Standard AC Motor)	
QT10	< 2% for < 60 l/h (0.26 gpm)	< 1% for > 60 l/h (0.26 gpm)
QT20	< 2% for < 200 l/h (0.88 gpm)	< 1% for > 200 l/h (0.88 gpm)
QT30	< 2% for < 500 l/h (2.2 gpm)	< 1% for > 500 l/h (2.2 gpm)

Advantages of QuattroTec pumps compared to peristaltic pumps

- Minimum particle generation
- Low risk of contamination of the pumped liquid and the end product
- No drop-in flow rate time
- Some peristaltic pumps are not capable of reaching more than 1 bar
- Low pulsation
- No tube failure

Advantages of QuattroTec pumps compared to lobe pumps

- Better of reaching all needed duties or scalability
- Ability to handle both product and CIP flow duties with same pump, no need for CIP bypass
- Self-priming, dry running
- No mechanical seals, no leakage problems and high maintenance costs
- High efficiency for low viscosity liquids
- Low power requirement, because low slip translated to minimal heat and shear to the pumped liquid

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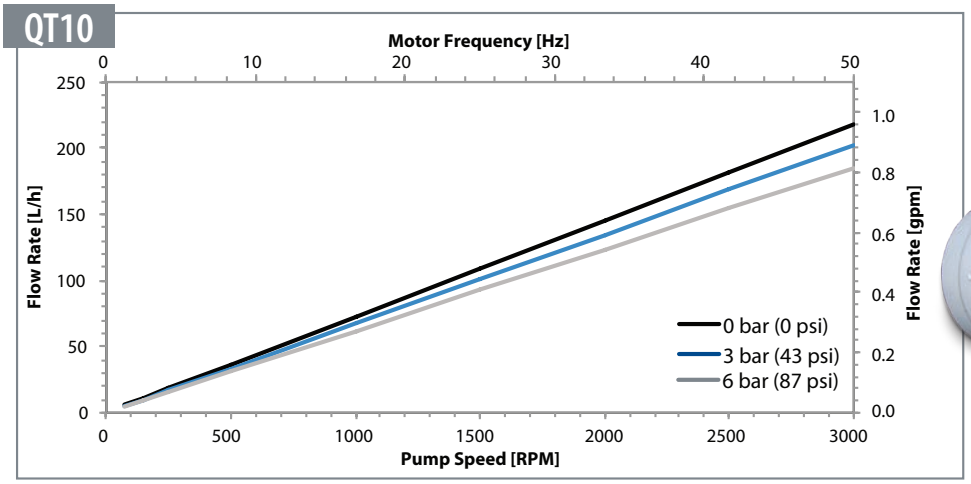
QuattroTec Quaternary Pump Technical Data (Base Versions)

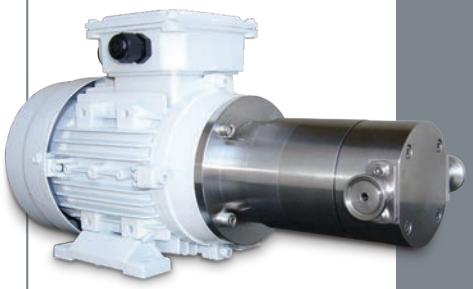
	Flow rate				Pressure		Maximum Temperature			Connector Type	Product Wetted Materials (Standard)			
	min	max @ 1 mPas	max @ 500 mPas	max @ 1.000 mPas	<40°C	>40°C	Process	CIP	SIP		Pump Chamber	Valves	Diaphragm	O-rings
QT10	5 lph (0.02 gpm)	180 lph (0.8 gpm)	120 lph (0.5 gpm)	50 lph (0.2 gpm)	6 barg (87 psig)	4 barg (58 psig)	80 °C (176 °F)	90 °C (194 °F)	**125 °C (257 °F)**	1/4"TC	316L, 0.8 µm (32 µin.)	EPDM	TPE (PP/EPDM)	EPDM
QT20	20 lph (0.09 gpm)	1200 lph (5.3 gpm)	700 lph (3.1 gpm)	500 lph (2.2 gpm)	6 barg (87 psig)	4 barg (58 psig)	80 °C (176 °F)	90 °C (194 °F)	**125 °C (257 °F)**	3/4"TC	316L, 0.8 µm (32 µin.)	EPDM	TPE (PP/EPDM)	EPDM
QT30	200 lph (0.9 gpm)	5000 lph (22.0 gpm)	4000 lph (17.6 gpm)	3500 lph (15.4 gpm)	6 barg (87 psig)	4 barg (58 psig)	80 °C (176 °F)	90 °C (194 °F)	**125 °C (257 °F)**	1-1/2"TC	316L, 0.8 µm (32 µin.)	EPDM	TPE (PP/EPDM)	EPDM

	Motor Type						Dimensions and Weights			
	Type	Pump Speed Range	Rated Speed @50Hz	Voltage	Power	Forced Cooling Fan	Length mm (in.)	Width mm (in.)	Height mm (in.)	Weight kg (lb.)
QT10	AC	75-3000 rpm	2800 rpm	220-240/ 380-420 V	0.37 kW ½ HP	No	335 (13.19)	139 (5.47)	199 (7.83)	10 (22)
QT20	AC	50-2400 rpm	1370 rpm	220-240/ 380-420 V	0.37 kW ½ HP	230V	487 (19.17)	159 (6.26)	194 (7.64)	18 (40)
QT30	AC	30-1200 rpm	1440 rpm	220-240/ 380-420 V	2.2 kW 3 HP	230V	777 (30.59)	288 (11.34)	341 (13.43)	85 (187)

QuattroTec Quaternary Pump Technical Data (Base Versions)

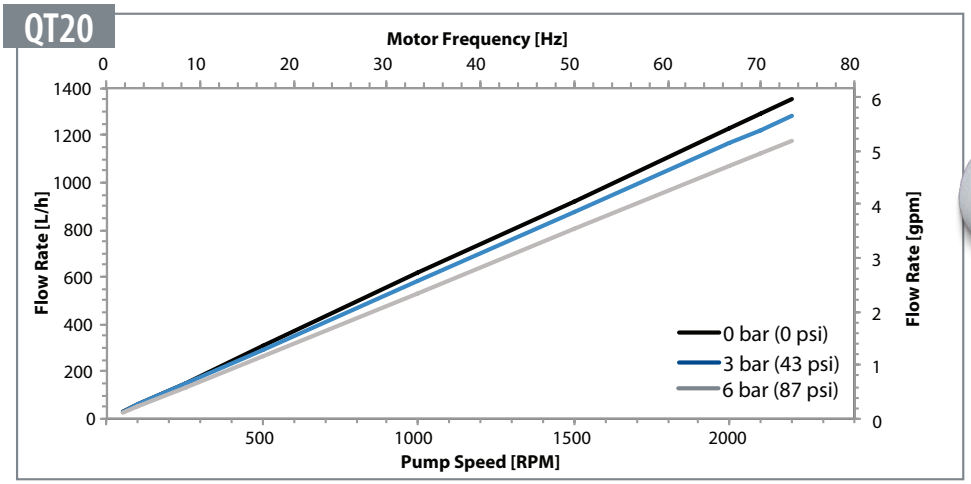
QT10





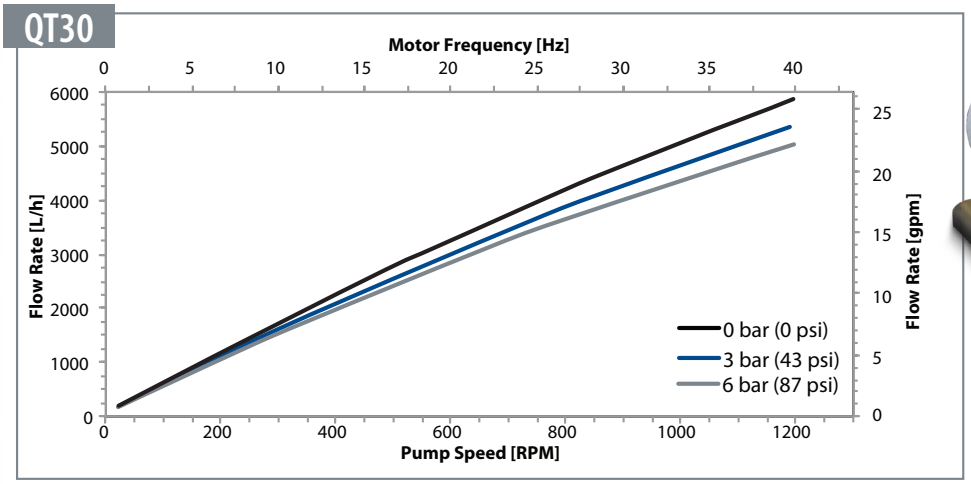
QT10

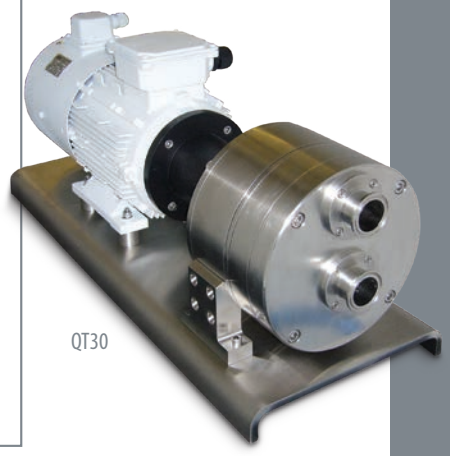
QT20



QT20

QT30





QT30

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Explanation of the QuattroTec Codesystem

Example: QT20SSEETE-5SSN (written in blue)

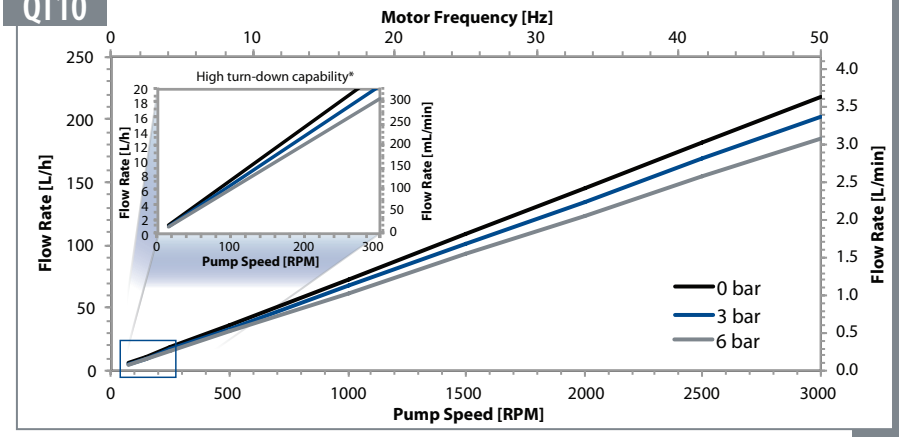
Position	Designation	Pump Sizes		
1-2	QuattroTec	QT	**QT**	QT
3-4	Size	10	**20**	30
5	Material Pump Chamber	S - 316L A - 1.4539 P - PP	**S - 316L** A - 1.4539 P - PP	S - 316L A - 1.4539 P - PP
6	Diaphragm	S - Santoprene (TPE)	**S - Santoprene (TPE)**	S - Santoprene (TPE) E - EPDM (only with 5°)
7	Valves	E - EPDM	**E - EPDM**	E - EPDM
8	O-Ring	E - EPDM	**E - EPDM**	E - EPDM
9	Connector Type	T - TC W- Buttwelding end	**T - TC** W- Buttwelding end	T - TC W- Buttwelding end
10	Connector Size	B- 1/4"	**E- 3/4"**	G- 1-1/2"
11	-	-	-	-
12	Shaft	5 - 5°	3 - 3° **5 - 5°**	3 - 3° 5 - 5° 6 - 6°
13	Ring Drive	S - Flange IEC Motor A - Flange NEMA Motor D - Diaphragm monitoring IEC E - Diaphragm monitoring NEMA	**S - Flange IEC Motor** A - Flange NEMA Motor D - Diaphragm monitoring IEC E - Diaphragm monitoring NEMA	**S - Flange IEC Motor** A - Flange NEMA Motor D - Diaphragm monitoring IEC E - Diaphragm monitoring NEMA
14	Motor	S - IEC AC Motor N - no Motor T - ATEX	**S - IEC AC Motor** N - no Motor T - ATEX	S - IEC AC Motor N - no Motor T - ATEX
15	Baseplate-Housing	N - no/no	**N - no/no**	B - yes/no N - no/no

Special Equipment and Accessories

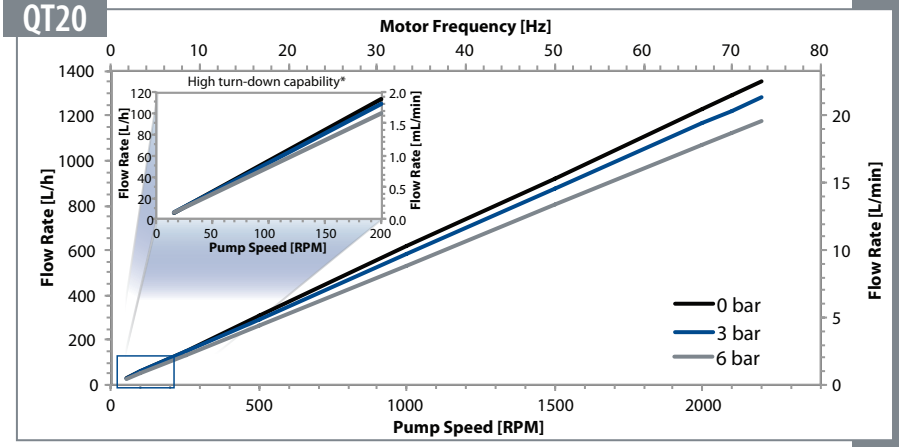
Alternative Drives

Alternative drives (brushless, DC) for higher precision and higher turn down (the flow charts show examples with such high-performance motors)

QT10



QT20

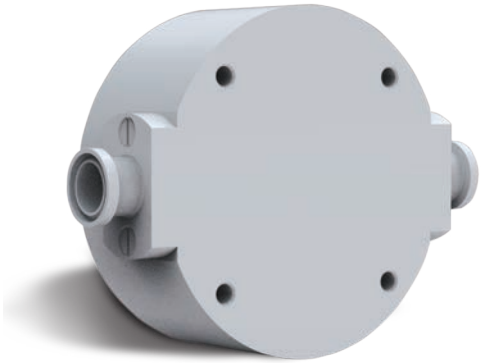


Diaphragm Sensor

- Sensor installed in ring drive unit
- Detection of all liquids
- Signal output to a controller, if diaphragm is ruptured

Control Box

- Variable speed controller with integrated key pad for manual speed control
- Configurable for remote speed control with 4 –20 mA analogue input
- 230V / 50 Hz or 115 V / 60 Hz
- Hygienic 1.4301 housing, IP 54
- Easy plug & play installation



Plastic Pump Chamber

QuattroTec product wetted plastic pump chambers are constructed of solid polypropylene (PP) that can be replaced as a complete unit. The plastic chambers are useful for products that have a difficult cleanability. A product change can easily be executed by the replacement of the plastic pump chamber. Furthermore it is used for applications where stainless steel is not desirable, like dissolved salts or flavors.

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QUATTROFLOW™ Fluid Systems

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