Series overview Wilo-Stratos

Design
Self regulating, Inline, ECM (Electronically Communicated) type

Application
Hot and chilled water hydronics, air conditioning, solar and geothermal systems

Model Numbers

Example:	**Wilo-Stratos 1.5x3-40**
Stratos	High-efficiency pump, electronically controlled
1.5	Flange size [in]
3-40	Min/max discharge head [ft]
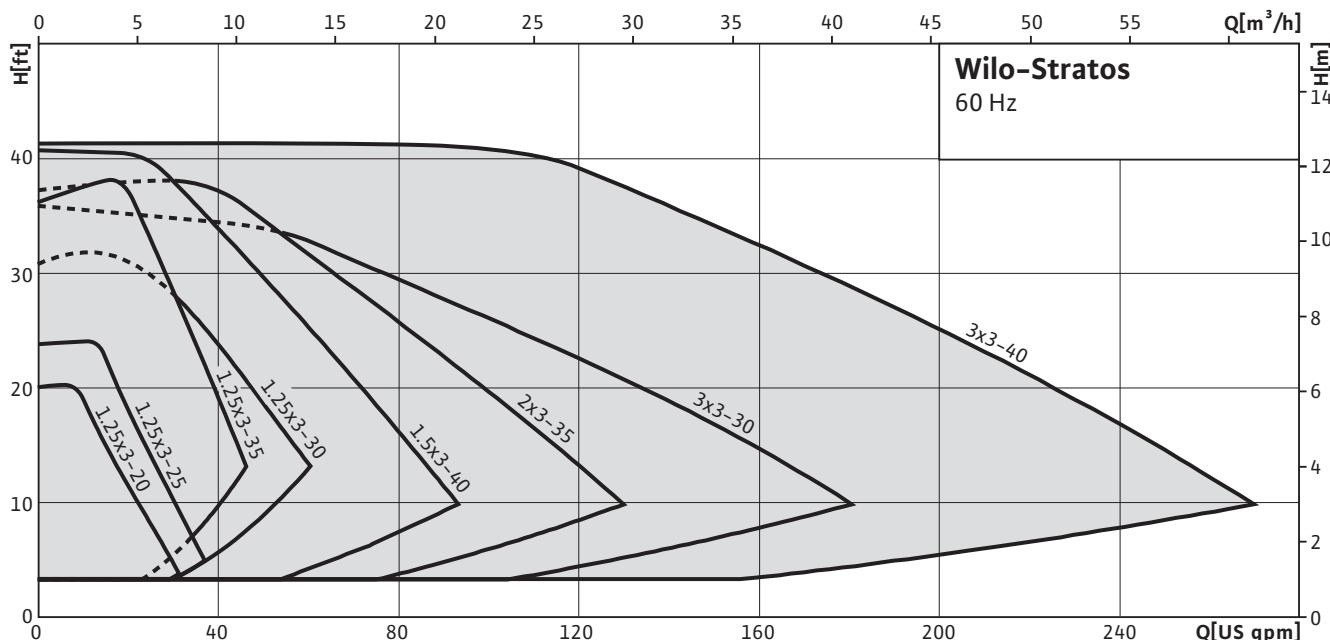
Special features/product benefits
- Energy efficiency class A
- Maximum efficiency with ECM technology
- Up to 80% energy savings compared to standard uncontrolled pumps
- Ease of installation with front access to wiring and programming "Red Button", position adjustable LCD viewing screen
- Cataphoresis coated cast iron volute for corrosion prevention
- External control and monitoring via optional IR interface modules (LONworks, BACnet, 0-10 Vdc, Ext Off, Ext Min and SBM Run Signal)
- Remote control and access to data logger via IF infra-red device
- Built in overload fault contacts (opens on over/under voltage, dry run, locked rotor, overload and over temperature)

Duty chart

Wilo-Stratos 60 Hz duty chart. Curves: 1.25x3-20, 1.25x3-25, 1.25x3-30, 1.25x3-35, 1.5x3-40, 2x3-35, 3x3-30, 3x3-40.

Heating, air-conditioning, cooling

High-efficiency pumps (single pumps)

Series overview Wilo-Stratos

Equipment/function

Operating modes
- Manual control mode (constant speed)
- Δp-c for constant differential pressure
- Δp-v for variable differential pressure
- Δp-T for temperature-controlled differential pressure (programmable via Infra-red device, LON or BacNet)

Manual functions
- Operating mode setting
- Differential-pressure setpoint setting
- Setting automatic setback operation
- Pump ON/OFF setting
- Speed setting (manual control mode)

Automatic functions
- Stageless power adjustment depending on the operating mode
- Automatic setback operation
- Deblocking function
- Soft start
- Full motor protection with integrated overload shut down

External control functions
- "External Off" control input (possible with optional Stratos IF-Modules)
- "External Min" control input (possible with optional Stratos IF-Modules)
- "Analogue In 0 - 10 V" control input (remote speed adjustment) (possible with optional Stratos IF-Modules)
- "Analogue In 0 - 10 V" control input (remote setpoint adjustment) (possible with optional Stratos IF-Modules)

Signal and display functions
- Collective fault signal (potential-free NC contact)
- Individual run signal (potential-free NO contact) (possible with optional Stratos IF-Modules)
- Fault signal light
- LC display for pump data and fault codes

Data exchange
- Infrared interface for wireless data exchange with IR-Module/IR-Stick
- Serial digital interface BACnet MS/TP Slave for connection to building automation BA via BUS system RS485 (possible with IF-Modules Stratos).
- Serial digital LON interface for connection to a LONWorks network (possible with Stratos IF-Modules)

Dual pump management (dual pump or 2 x single pump)
- Main/standby mode (automatic fault-actuated switchover/time-dependent pump cycling): Various combinations with Stratos IF-Modules (accessories) possible
- Parallel operation (efficiency-optimised peak load activation and deactivation): Various combinations with Stratos IF-Modules (accessories) possible

Scope of delivery
- Pump
- Flange gaskets
- Operating instructions

Accessories
- IR-Module
- IR-Stick
- IF-Modules Stratos: BACnet, LONworks, Ext. Off, Ext. Min, SBM, Ext. Off/SBM

Equipment/function

	Wilo–Stratos
Operating modes	
Manual control mode (constant speed)	•
Δp–c for constant differential pressure	•
Δp–v for variable differential pressure	•
Δp–T for temperature–controlled differential pressure	•
Manual functions	
Operating mode setting	•
Differential–pressure setpoint setting	•
Setting automatic setback operation	•
Pump ON/OFF setting	•
Speed setting (manual control mode)	•
Automatic functions	
Infinitely variable power adjustment depending on the operating mode	•
Automatic setback operation	•
Deblocking function	•
Soft start	•
Integrated overload protection	•
External control functions	
"Analogue In 0 … 10 V" control input (remote speed adjustment)	• (Possible with optional Interface Module)
"Analogue In 0 … 10 V" control input (remote adjust–ment setpoint)	• (Possible with optional Interface Module)
Signal and display functions	
Collective fault signal (potential–free NC contact)	•
Fault signal light	•
LCD screen for the display of pump data and fault codes	•
Data exchange	
Infra–red remote control for wireless data exchange and/or pump adjustment via USB stick or PDA type IR device	•
Serial digital LON interface for connection to a LON–WORKS network	• (Possible with optional Interface Module)
Serial digital BACnet S/TP interface for connection to an RS485 bus system	• (Possible with optional Interface Module)
Dual pump management (dual pump or 2 x single pump)	
Main/standby mode (automatic fault–actuated swi–tchover/time–dependent pump cycling)	•
Parallel operation (efficiency–optimised peak load cut–in and out)	•
Equipment/scope of delivery	
Flange gasket	• (not for 125# ANSI Flange model)
Installation and operating instructions	•

• = available, – = not available

Heating, air-conditioning, cooling

High-efficiency pumps (single pumps)

Technical Data Wilo-Stratos

|	Wilo-Stratos...							
	1.25x3–20	1.25x3–25	1.25x3–30	1.25x3–35	1.5x3–40	2x3–35	3x3–30	3x3–40
Approved fluids (other fluids on request)								
Heating water	•	•	•	•	•	•	•	•
Water glycol mixtures up to 50% concentration	•	•	•	•	•	•	•	•
Power								
Max. head H_{max}	20 ft	23 ft	36 ft	30 ft	39 ft	36 ft	33 ft	43 ft
Max. head H_{max}	6 m	7 m	11 m	9 m	12 m	11 m	10 m	13 m
Max. flow Q_{max}	31 US GPM	35 US GPM	48 US GPM	57 US GPM	84 US GPM	128 US GPM	181 US GPM	273 US GPM
Max. flow Q_{max}	7 m^3/h	8 m^3/h	11 m^3/h	13 m^3/h	19 m^3/h	29 m^3/h	41 m^3/h	62 m^3/h
Permitted field of application								
Temperature range for applications in heating, ventilation & air-conditioning systems at max. ambient temperature of +40 °C	+14 to +230 °F (–10 to +110 °C)							
Max. ambient temperature T	104 °F							
Max. ambient temperature T	40 °C							
Pipe connections								
Nominal flange diameter Dia	1.25 "	1.25 "	1.25 "	1.25 "	1.5 "	2 "	3 "	3 "
Non ANSI flange (oval, rotated 90°)	•	•	•	•	–	–	–	–
Non ANSI flange (oval)	–	–	–	–	•	–	–	–
HV pump flange	–	–	–	–	–	•	–	–
125# ANSI flange	–	–	–	–	–	–	•	•
Electrical connection								
Input power – single phase U	230 V	230 V	230 V	230 V	230 V	230 V	230 V	230 V
Input frequency f	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz
Motor/electronics								
Speed control	Frequency converter							
Degree of protection	Enclosure 2							
Insulation class	H	H	H	H	H	H	H	H
Materials								
Pump volute	Grey cast iron (EN-GJL-250)							
Impeller	Engineered composite (PPS – 40% GF)							Engineered composite (PP – 50% GF)
Pump shaft	Stainless steel (X46Cr13)							
Bearing	Carbon, metal impregnated							
Minimum suction head								
Minimum suction head at 122 °F (50°C)	4.3 psi	4.3 psi	4.3 psi	4.3 psi	7.1 psi	7.1 psi	10.0 psi	10.0 psi
Minimum suction head at 203 °F (95°C)	14.2 psi	14.2 psi	14.2 psi	14.2 psi	17.1 psi	17.1 psi	21.3 psi	21.3 psi
Minimum suction head at 230 °F (110°C)	22.8 psi	22.8 psi	22.8 psi	22.8 psi	25.6 psi	25.6 psi	32.7 psi	32.7 psi

• = available, – = not available

Pump curves Wilo–Stratos

### Wilo-Stratos 1.25x3–20

Δp–c (constant)
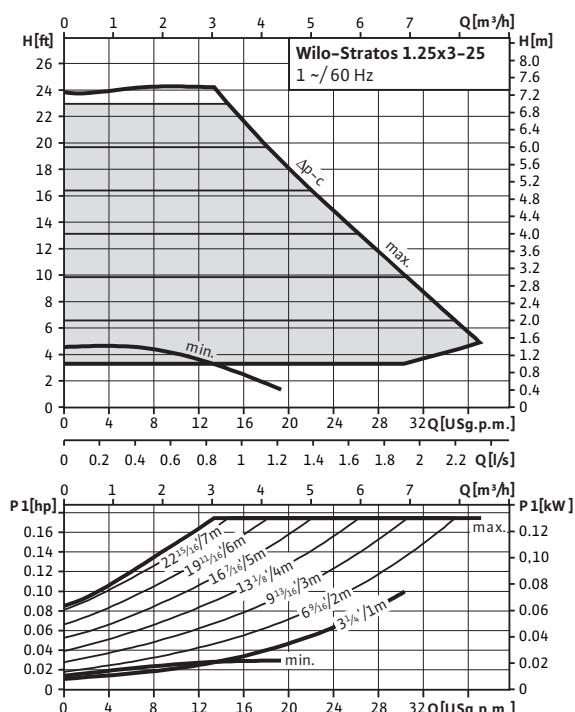
Δp–v (variable)
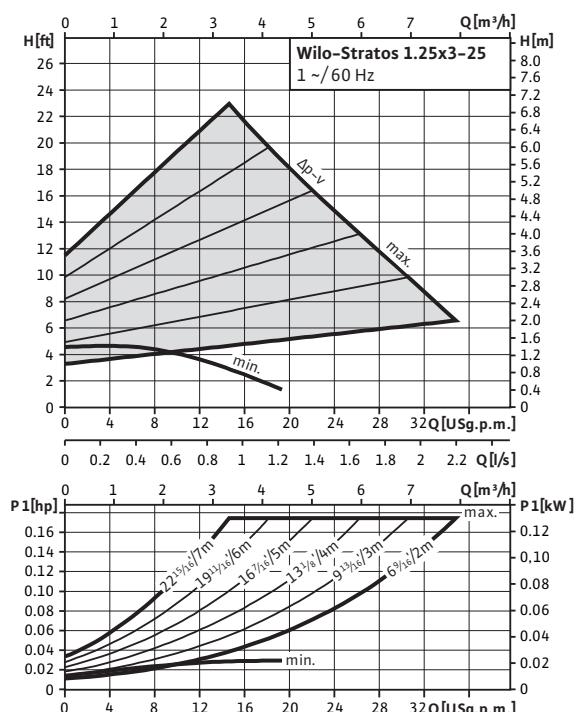
Wilo-Stratos 1.25x3–25

Δp–c (constant)

Δp–v (variable)
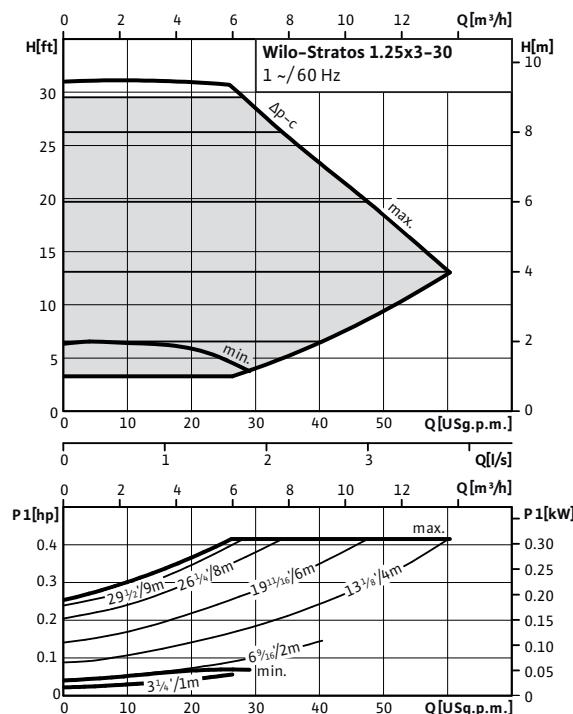
High-efficiency pumps (single pumps)
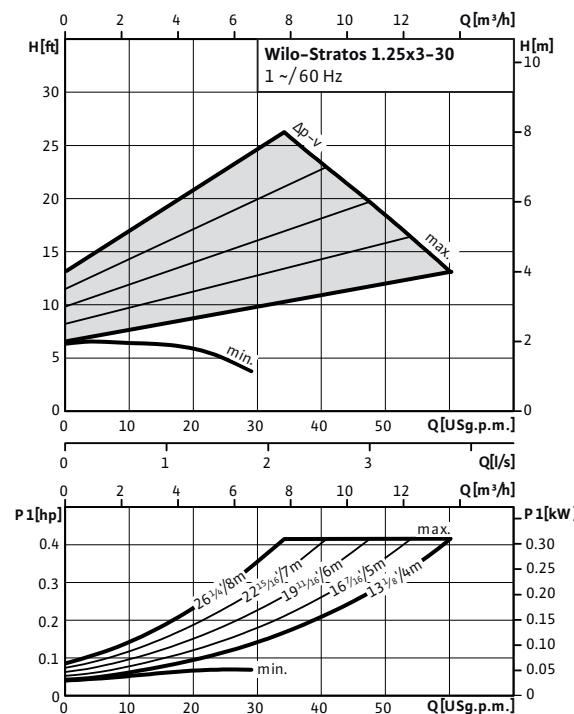
Pump curves Wilo-Stratos

Wilo-Stratos 1.25x3-30
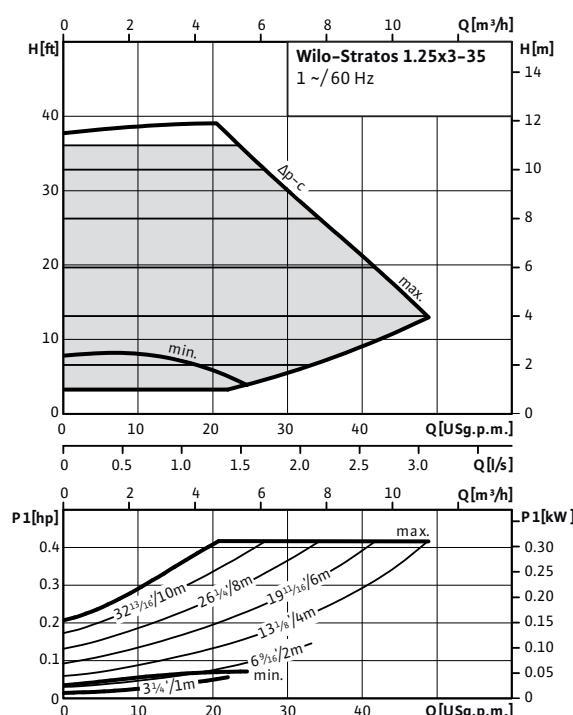
Δp-c (constant)
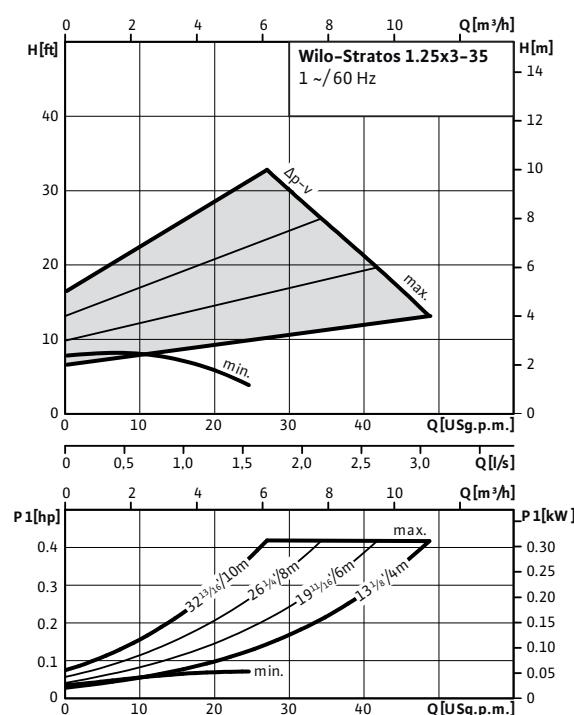
Δp-v (variable)

Wilo-Stratos 1.25x3-35
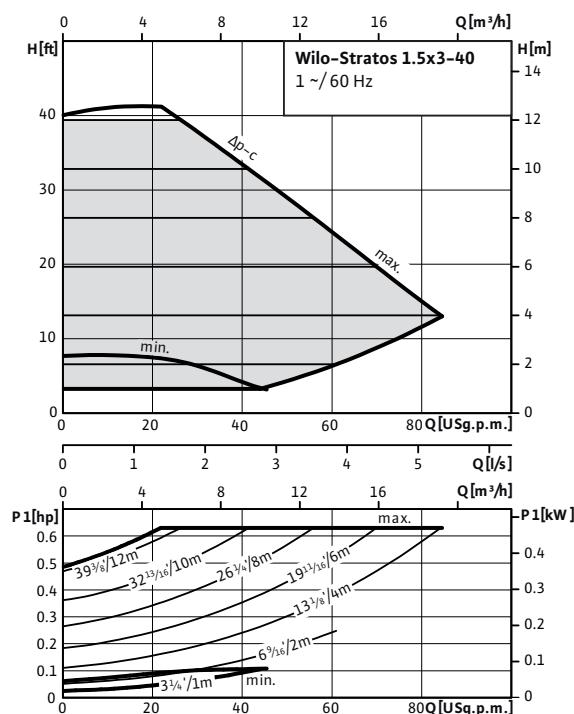
Δp-c (constant)

Δp-v (variable)

Pump curves Wilo–Stratos

Wilo–Stratos 1.5x3–40
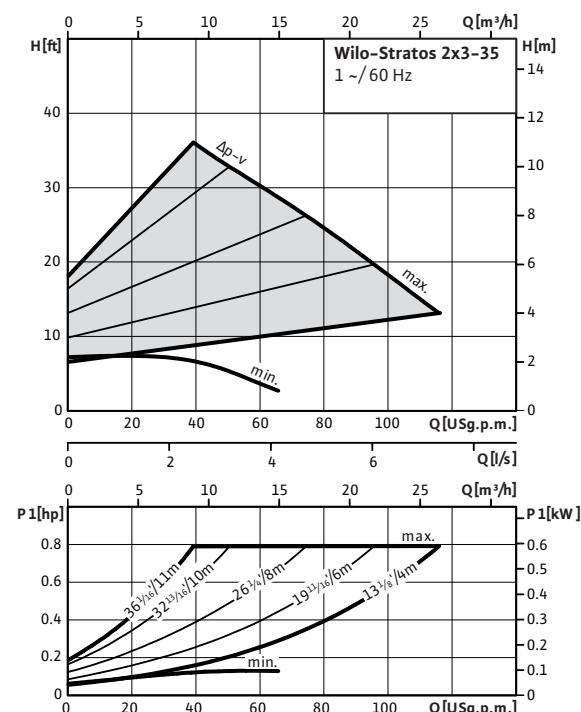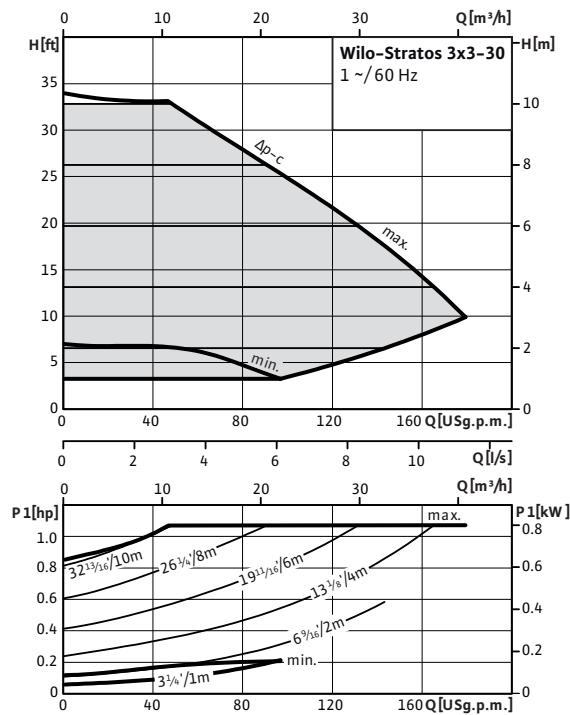
Δp–c (constant)

Wilo–Stratos 1.5x3–40
1 ~/ 60 Hz

Δp–v (variable)

Wilo–Stratos 1.5x3–40
1 ~/ 60 Hz

Wilo–Stratos 2x3–35

Δp–c (constant)

Wilo–Stratos 2x3–35
1 ~/ 60 Hz

Δp–v (variable)

Wilo–Stratos 2x3–35
1 ~/ 60 Hz

High-efficiency pumps (single pumps)
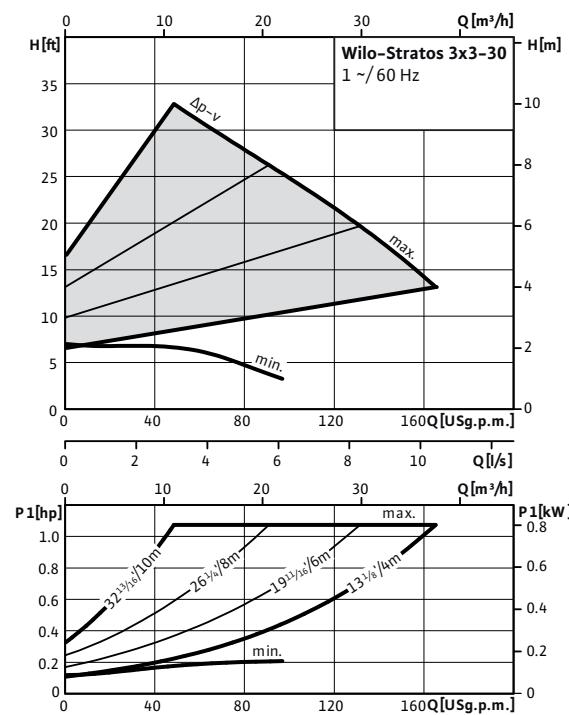
Pump curves Wilo-Stratos

Wilo-Stratos 3x3–30
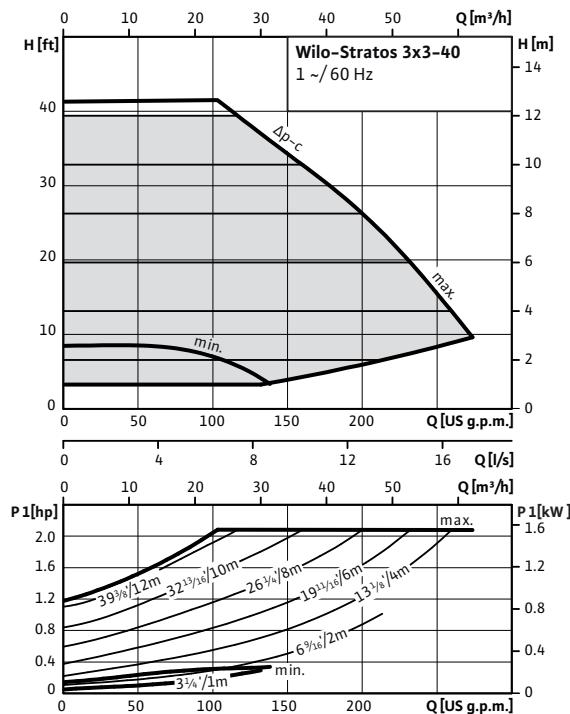
Δp-c (constant)
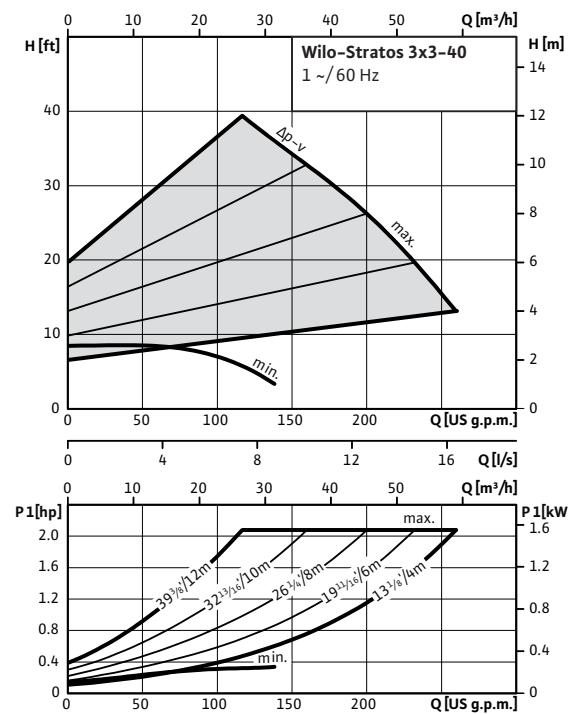
Δp-v (variable)

Wilo-Stratos 3x3–40

Δp-c (constant)
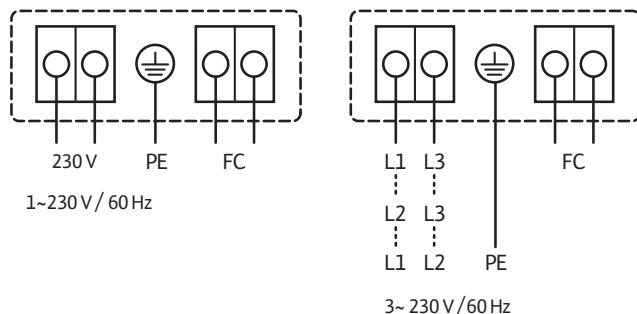
Δp-v (variable)

Wiring diagram, motor data Wilo–Stratos

Wiring diagram

FC: Collective fault signal (NC contact rating 1 A, 250 V~)

230 V PE FC

1~230 V / 60 Hz

L1 L3   FC
L2 L3
L1 L2 PE

3~ 230 V / 60 Hz
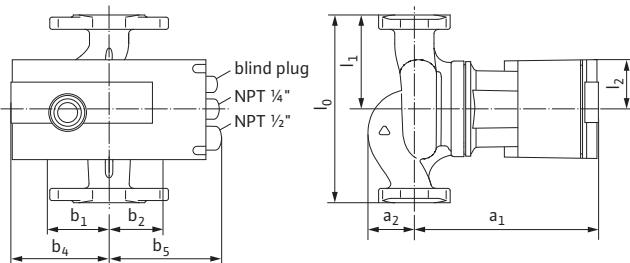
Motor data							
Wilo–Stratos...	**Rated motor power**	**Speed**	**Power con–sumption 1~230 V**	**Current at 1~230V**	**Current at 3~230V**	**Thermal pro–tection**	**Threaded cable connection**
	P_2	n	P_1	I		–	–
	hp	rpm	W	A			–
1.25x3–20	0.087	1400 – 3400	9 – 85	0.13 – 0.78	0.13 – 0.78	integrated	1xNPT 1/4" 1xNPT 1/2"
1.25x3–25	0.134	1400 – 3700	9 – 130	0.13 – 1.20	0.13 – 1.20	integrated	1xNPT 1/4" 1xNPT 1/2"
1.25x3–30	0.268	1600 – 4800	16 – 310	0.16 – 1.37	0.16 – 1.37	integrated	1xNPT 1/4" 1xNPT 1/2"
1.25x3–35	0.268	1600 – 4800	16 – 310	0.16 – 1.37	0.16 – 1.37	integrated	1xNPT 1/4" 1xNPT 1/2"
1.5x3–40	0.469	1400 – 4600	25 – 470	0.20 – 2.05	0.20 – 2.05	integrated	1xNPT 1/4" 1xNPT 1/2"
2x3–35	0.671	1400 – 4600	25 – 590	0.20 – 2.60	0.20 – 2.60	integrated	1xNPT 1/4" 1xNPT 1/2"
3x3–30	0.872	950 – 3300	38 – 800	0.30 – 3.50	0.30 – 3.50	integrated	1xNPT 1/4" 1xNPT 1/2"
3x3–40	1.743	900 – 3300	40 – 1550	0.32 – 6.80	0.32 – 6.80	integrated	1xNPT 1/4" 1xNPT 1/2"
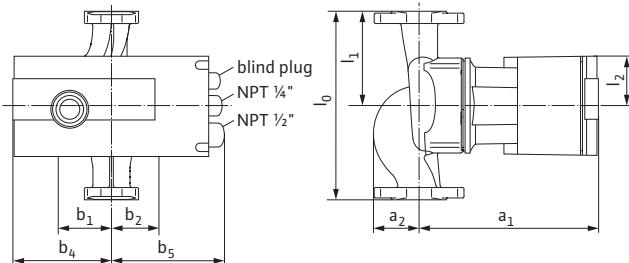
High-efficiency pumps (single pumps)

Dimensions, weights Wilo-Stratos
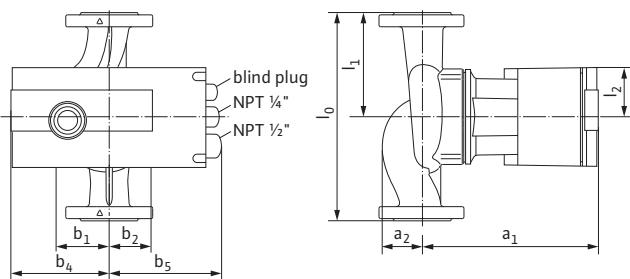
Dimension drawing 1

Dimension drawing 2

blind plug
NPT ¼"
NPT ½"

b_1 b_2

b_4 b_5

l_1 l_0 l_2

a_2 a_1

blind plug
NPT ¼"
NPT ½"

b_1 b_2

b_4 b_5

l_1 l_0 l_2

a_2 a_1
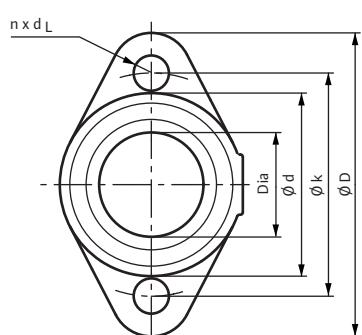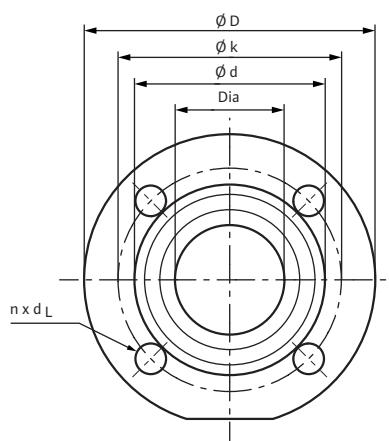
Dimension drawing 3

blind plug
NPT ¼"
NPT ½"

b_1 b_2

b_4 b_5

l_1 l_0 l_2

a_2 a_1

Dimension drawing flange 1

n x d $_L$

Dia $\emptyset$ d $\emptyset$ k $\emptyset$ D

Dimension drawing flange 2

$\emptyset$ D
$\emptyset$ k
$\emptyset$ d
Dia

n x d $_L$

Dimensions, weights Wilo-Stratos

Dimensions, weights

Wilo–Stratos…	Nominal flange diameter		Overall length		Dimensions							
	Dia		l_0		l_1		l_2		a_1		a_2	
	In.	–	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1.25x3–20	1.25	32	$6^1/_2$	165	$3^1/_4$	82.5	$1^{15}/_{16}$	49	$7^3/_{16}$	182	$1^{11}/_{16}$	43
1.25x3–25	1.25	32	$6^1/_2$	165	$3^1/_4$	82.5	$1^{15}/_{16}$	49	$7^3/_{16}$	182	$1^{11}/_{16}$	43
1.25x3–30	1.25	32	$8^1/_2$	216	$4^1/_4$	108	$2^3/_{16}$	55	$8^1/_{16}$	204	$1^7/_8$	48
1.25x3–35	1.25	32	$8^1/_2$	216	$4^1/_4$	108	$2^3/_{16}$	55	$7^{15}/_{16}$	201	$1^{15}/_{16}$	50
1.5x3–40	1.5	40	10	254	5	127	$2^5/_8$	66	$9^{15}/_{16}$	252	$2^7/_{16}$	62
2x3–35	2	50	11	279	$5^1/_2$	139.5	$2^5/_8$	66	$10^1/_{16}$	256	$2^1/_2$	63
3x3–30	3	80	14	356	7	178	$3^1/_{16}$	78	$12^{13}/_{16}$	325	$3^7/_{16}$	87
3x3–40	3	80	14	356	7	178	$3^1/_{16}$	78	$12^{15}/_{16}$	329	$3^9/_{16}$	90

Dimensions, weights

Wilo–Stratos…	Dimensions								Weight approx.		Dimension drawing
	b_1		b_2		b_4		b_5		m		–
	In.	mm	In.	mm	In.	mm	In.	mm	lbs	kg	–
1.25x3–20	$2^1/_8$	54	$1^7/_8$	48	$3^1/_2$	89	$5^9/_{16}$	142	11.02	5	1
1.25x3–25	$2^1/_8$	54	$1^7/_8$	48	$3^1/_2$	89	$5^9/_{16}$	142	11.02	5	1
1.25x3–30	$2^1/_2$	63	$2^1/_8$	54	$4^3/_{16}$	106	$5^{11}/_{16}$	145	14.99	6.8	1
1.25x3–35	$2^3/_8$	61	$2^3/_{16}$	55	$4^3/_{16}$	106	$5^3/_4$	146	14.55	6.6	1
1.5x3–40	$2^7/_8$	73	$2^1/_2$	64	$4^3/_4$	120	$6^7/_{16}$	163	24.25	11	2
2x3–35	$3^1/_4$	82	$2^1/_2$	64	$4^3/_4$	120	$6^7/_{16}$	163	28.66	13	3
3x3–30	$4^1/_{16}$	103	$3^5/_{16}$	84	$6^1/_8$	156	$7^1/_2$	191	61.73	28	3
3x3–40	$4^7/_{16}$	113	$3^9/_{16}$	90	$6^1/_8$	156	$7^1/_2$	191	66.14	30	3

Flange dimensions

Wilo–Stratos…	Flange	Nominal flange diameter		Pump flange dimensions								Dimension drawing, flange
	–	Dia		$\varnothing$ d				$\varnothing$ k		n x $\varnothing$ d_L		–
	–	In.	–	In.	mm	In.	mm	In.	mm	pcs. x In.	pcs. x mm	–
1.25x3–20	Non ANSI (oval 90° rotated)	1.25	32	$4^3/_4$	121	$2^7/_8$	73	$3^1/_2$	89	2 x $^9/_{16}$	2 x 14	1
1.25x3–25	Non ANSI (oval 90° rotated)	1.25	32	$4^3/_4$	121	$2^7/_8$	73	$3^1/_2$	89	2 x $^9/_{16}$	2 x 14	1
1.25x3–30	Non ANSI (oval 90° rotated)	1.25	32	$4^3/_4$	121	$2^7/_8$	73	$3^1/_2$	89	2 x $^9/_{16}$	2 x 14	1
1.25x3–35	Non ANSI (oval 90° rotated)	1.25	32	$4^3/_4$	121	$2^7/_8$	73	$3^1/_2$	89	2 x $^9/_{16}$	2 x 14	1
1.5x3–40	Non ANSI (oval)	1.5	40	$4^3/_4$	121	$2^7/_8$	73	$3^1/_2$	89	2 x $^9/_{16}$	2 x 14	1
2x3–35	Non ANSI (round)	2	50	$5^1/_4$	133	$3^7/_{16}$	87	4	102	4 x $^9/_{16}$	4 x 14	2
3x3–30	ANSI R.F. Class 125 ASTMA 126	3	80	$7^9/_{16}$	192	$5^1/_{16}$	128	6	152	4 x $^3/_4$	4 x 19	2
3x3–40	ANSI R.F. Class 125 ASTMA 126	3	80	$7^9/_{16}$	192	$5^1/_{16}$	128	6	152	4 x $^3/_4$	4 x 19	2