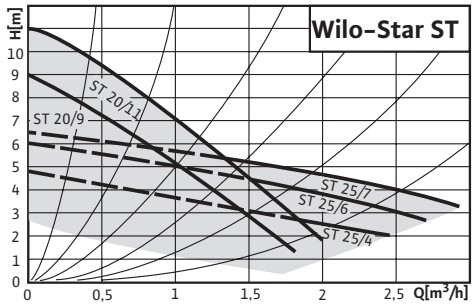
Wilo-Star-ST (SolarStar) Series

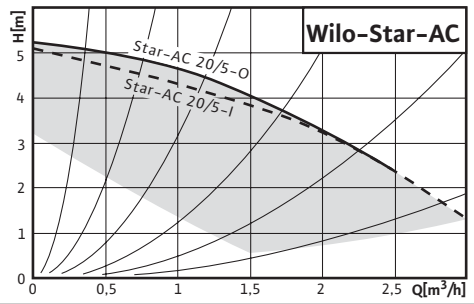
Duty chart



- Single-head pumps:
  Circulating pumps with screwed connection
- Applications:
  Solar thermal systems
- Special features:
  – Special hydraulics for use in solar thermal systems
  – Cathaphoresis coating for preventing corrosion

Wilo-Star-AC (ClimaStar) Series

Duty chart



- Single-head pumps:
  Circulating pumps with screwed connection
- Applications:
  Air-conditioning equipment and refrigeration systems
- Special features:
  – Corrosionproof composite pump housing
  – Inline and offline designs

Equipment/Function

	Wilo-Star ST (SolarStar)	Wilo-Star-AC (ClimaStar)
Operating modes		
Speed-stage switching	•	•
Control mode (n = constant)	–	–
Δp-cv for combined differential pressure	–	–
Δp-c for constant differential pressure	–	–
Δp-v for variable differential pressure	–	–
Δp-T for temperature-prompted differential pressure	–	–
Manual functions		
Adjustment of operating mode	–	–
Adjustment of differential-pressure setpoint	–	–
Adjustment of "autopilot" (automatic setback mode)	–	–
Adjustment of pump ON/OFF	–	–
Adjustment of speed (manual setting mode)	•	•
Adjustment of speed stages	3	3
Automatic functions		
Stepless performance adaptation as a function of operating mode	–	–
"Autopilot" automatic setback mode	–	–
Deblocking function	–	–
Soft start	–	–
Safety control	–	–
Full motor protection with integrated trip electronics	–	–
External control functions		
Control input "Overriding Off"	–	–
Control input "Overriding Min"	–	–
Control input "Analog In 0 ... 10 V" (remote speed setting)	–	–
Control input "Analog In 0 ... 10 V" (remote setpoint setting)	–	–
Signal and display functions		
Single fault signal (floating NC contact)	–	–
Collective fault signal (floating NC contact)	–	–
Single/collective run signal (floating NO contact)	–	–
Thermal winding contact (WSK, floating NC contact)	–	–
Fault light	–	–
Direction-of-rotation telltale lamp	–	–
LC display for showing pump data and fault codes	–	–
Data exchange		
Infrared interface for wireless data exchange with IR monitor	–	–
PLR serial digital interface for connection to BA via Wilo interface converter or company-specific coupling modules	–	–
LON serial digital interface for connection to a LONWORKS network	–	–

Equipment/Function

	Wilo-Star ST (SolarStar)	Wilo-Star-AC (ClimaStar)
Dual pump management: twin-head pump or 2 x single-head pump		
Main/standby pump operation (automatic fault-actuated duty changeover/time-sensitive pump replacement)	–	–
Addition operation (efficiency-optimized peak-load cut-in and out)	–	–
Equipment/scope of delivery		
Wrench attachment point on pump body	• (only with nominal dia. DN 25)	–
Double changeover valve in pump housing	–	–
Cable entry possible on both sides	•	•
Wilo quick connection with snap-on clips	•	•
Integrated air separator for automatic rapid ventilation Rp $^3/_8$	–	–
Plug-in slot for optional expansion with Wilo IF modules	–	–
Blocking-circuit-proof motor	•	•
Incl. seals for threaded connection (loose)	•	•
Incl. installation and operating instructions	•	•
Incl. thermal insulation	–	–
Incl. washers for flange bolts (for DN 32 – DN 65 nominal connection diameters)	–	–
Incl. 1.8 m connecting cable with grounding plug	–	–
Integrated non-return valve	–	–
Integrated ball shut-off valve	–	–
Incl. time switch	–	–

• = available, – = not available

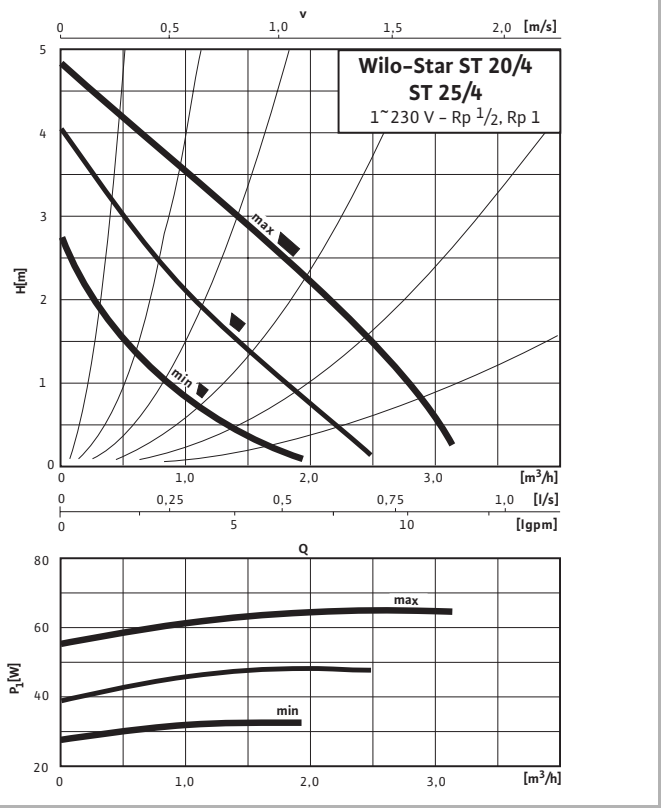
	Wilo-Star-ST (SolarStar)						Wilo-Star-AC (CliMaStar)	
	20/4 25/4	**20/6 25/6**	**20/7 25/7**	**20/9**	**20/11**	**15/40**	**20/5-O**	**20/5-I**
Approved fluids (other fluids on request)								
Heating water (as per VDI 2035)	–						–	–
Water/glycol mixtures (max. 1:1; mixtures with more than 20 % glycol content require rechecking of the pumping data)	• (ST 15/40: operating mode only with water/glycol mixtures of 50 %)						•	•
Domestic hot water for secondary and service water systems in accordance with German directive TrinkwV 2001	–	–	–	–	–	–	–	–
Performance								
Max. delivery head [m]	5	6	7	10	12	50	5	5
Flow rate max. [m^3/h]	3	3.5	4	2	2	0.15	2.5	3
Speed range [rpm]	1,100–2,100	1,500–2,500	2,000–2,700	1,100–2,100	1,500–2,500	2,500–2,600	1,300–2,300	1,150–2,200
Permitted field of application								
Temperature range for use in heating, ventilation and A/C systems at max. ambient temperature +25 °C [°C] at max. ambient temperature +40 °C [°C]	– –10 to +110 (short-time duty 2 h: +120)					– 0 to +95 (short-time duty 2 h: +110)	– –10 to +95	
Temperature range for use in drinking-water circulation systems at max. ambient temperature +40 °C [°C]	–						–	
Max. permitted total hardness in drinking-water circulation systems [°d]	–						–	
Standard version for operating pressure p_{max} [bar]	10	10	10	10	10	6	6	6
Special version for operating pressure p_{max} [bar]	–	–	–	–	–	–	–	–
Pipe connections								
Screwed connection Rp/G	Rp 1					G $1/2$	G 1	
Filler connection [G, inside]	–					$1/4$	–	
Nominal connection diameter DN	–					–	–	
Flange for mating flange PN 6, standard version	–					–	–	
Flange for mating flange PN 16, special version	–	–	–	–	–	–	–	–
Combination flange PN 6/10 for mating flanges PN 6 and PN 16, standard version	–	–	–	–	–	–	–	–
Support-bracket mounting (with horizontal shaft only), standard version	–	–	–	–	–	–	–	–
Support-bracket mounting (with horizontal shaft only), special version	–	–	–	–	–	–	–	–
Electrical connection								
Mains connection 1~ [V], standard version	230						230	
Mains connection 3~ [V], standard version	–						–	
Mains connection 3~ [V], with optional adapter plug	–						–	
Mains frequency [Hz]	50	50	50	50	50	50	50	50

Technical Data

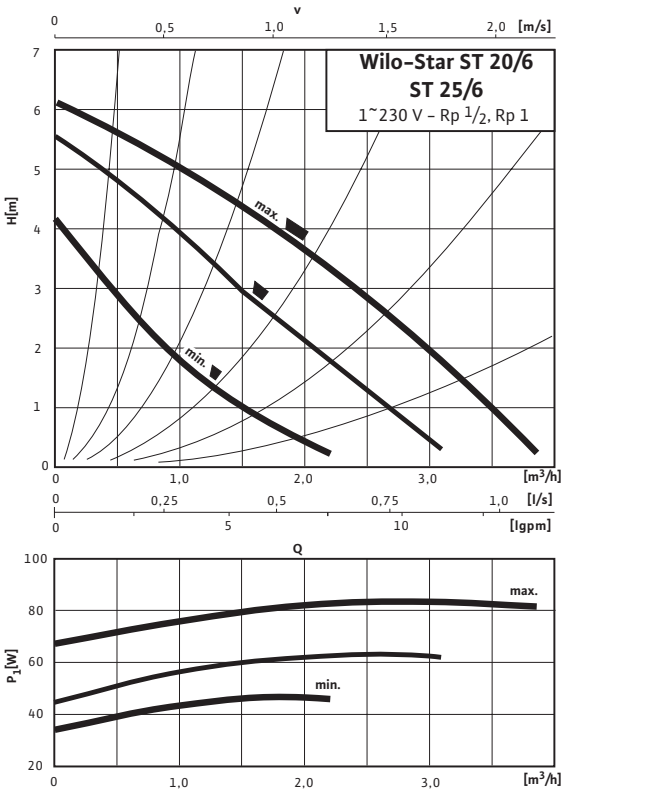
	Wilo-Star-ST (SolarStar)						Wilo-Star-AC (CliMaStar)	
	20/4 25/4	20/6 25/6	20/7 25/7	20/9	20/11	15/40	20/5-O	20/5-I
Motor/electronics								
Electromagnetic compatibility	–						–	
Emitted interference	EN 61000-6-3						EN 61000-6-3	
Immunity to interference	EN 61000-6-2						EN 61000-6-2	
Power electronics	–						–	
Radio interference suppression level	N						N	
Protection class	IP 44						IP 44	
Insulation class	F						F	
Materials								
Pump housing	Gray cast iron (EN-GJL-200), cataphoresis coating					Plastic (Luranyl)	Plastic (Composite)	
Impeller	Polypropylene					–	Polypropylene	
Gear set	–					Plastic	–	
Shaft	Stainless steel (X40 Cr13)					Stainless steel	Stainless steel (X40 Cr13)	
Bearing	Carbon						Carbon	
Minimum suction head [m]								
at water delivery temperature of 50 °C	0.5							
at water delivery temperature of 95 °C	3							
at water delivery temperature of 110 °C	10							

• = available, – = not available

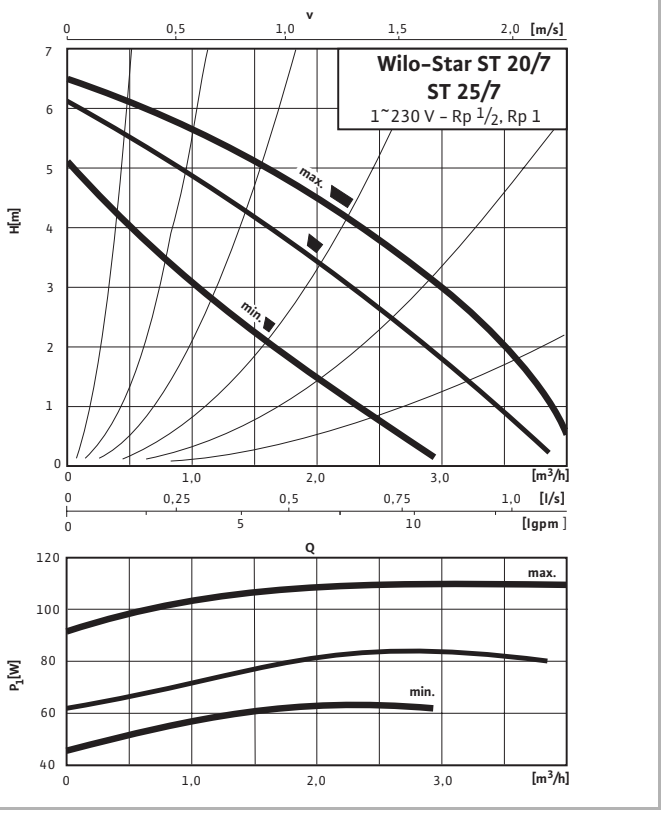
Wilo-Star ST 20/4, ST 25/4



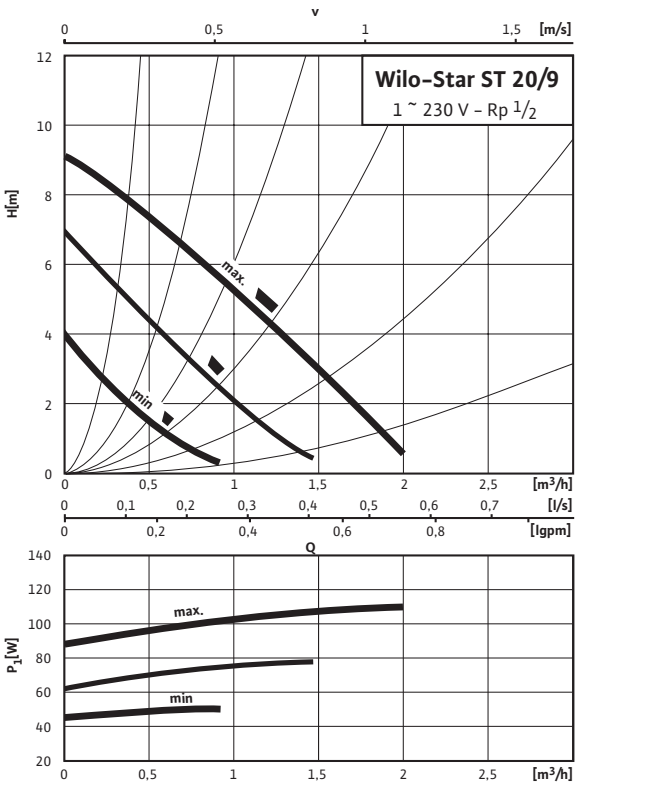
Wilo-Star ST 20/6, ST 25/6



Wilo-Star ST 20/7, ST 25/7

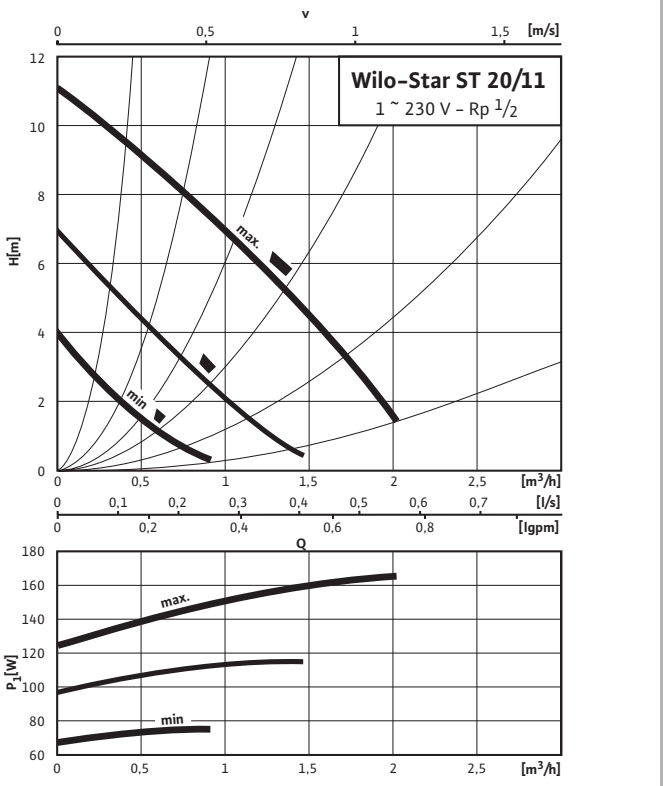


Wilo-Star ST 20/9

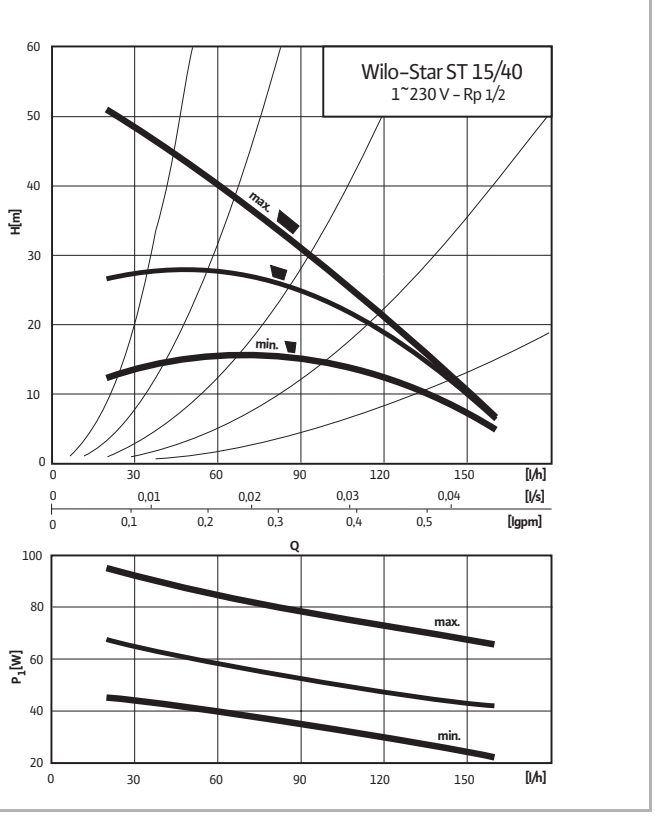


Pump Curves

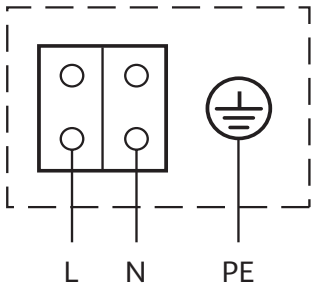
Wilo-Star ST 20/11



Wilo-Star ST 15/40



Terminal diagram



AC motor (EM) 2-pole - 1~230 V, 50 Hz,
with integrated capacitor

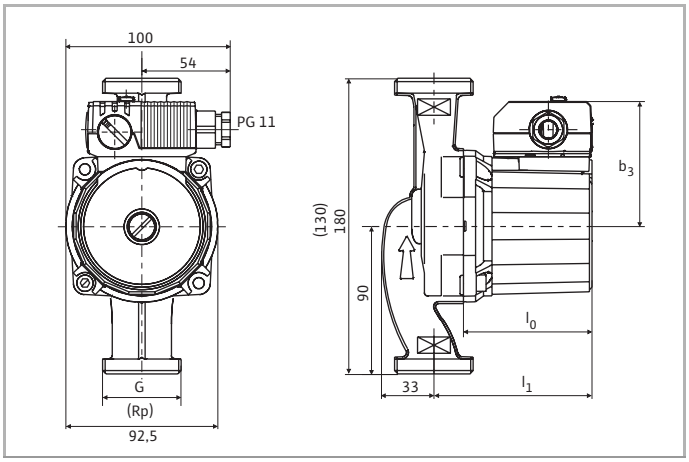
Motor data

	Rated power	Stage/speed	Power consumption	Current	Capacitor	Pg screwed connection	Motor protection
	P_2	n	P_1	I	–	–	–
	[W]	[rpm]	[W]	[A]	[µF/VDB]	–	–
Star ST 25/4 **Star ST 20/4**	22 13 7	max 2,100 1,600 min 1,100	55 - 65 38 - 48 27 - 32	0.28 0.21 0.15	2.0/400	11	not necessary (blocking-current-proof)
Star ST 25/6 **Star ST 20/6**	37 22 12	max 2,500 2,100 min 1,500	68 - 82 46 - 63 34 - 44	0.36 0.28 0.20	2.6/400	11	not necessary (blocking-current-proof)
Star ST 25/7 **Star ST 20/7**	60 22 7	max 2,700 2,500 min 2,000	92 - 110 62 - 84 44 - 63	0.48 0.38 0.29	3.5/400	11	not necessary (blocking-current-proof)
Star ST 20/9	44 25 14	max 2,100 1,600 min 1,100	88 - 110 62 - 78 45 - 50	0.50 0.35 0.25	3.0/400	11	not necessary (blocking-current-proof)
Star ST 20/11	61 34 18	max 2,500 2,100 min 1,500	125 - 165 97 - 115 67 - 75	0.72 0.55 0.35	2.6/400	11	not necessary (blocking-current-proof)
Star ST 15/40	38 27 15	max 2,600 2,550 min 2,500	65 - 95 40 - 66 21 - 44	0.43 0.31 0.21	2.6/400	11	not necessary (blocking-current-proof)

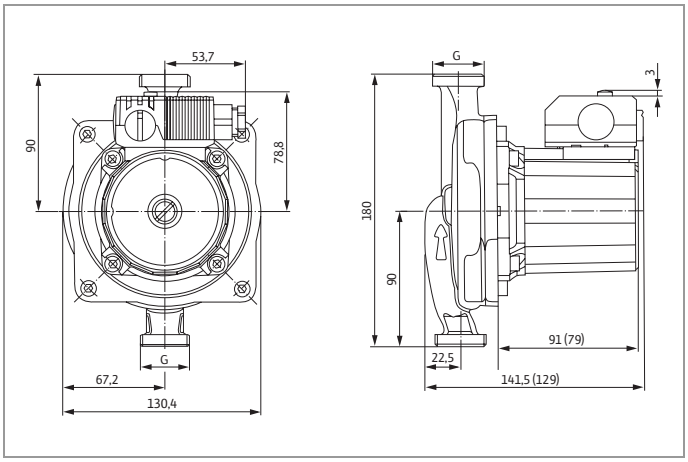
Always refer to name plate data!

Dimensions, Weights

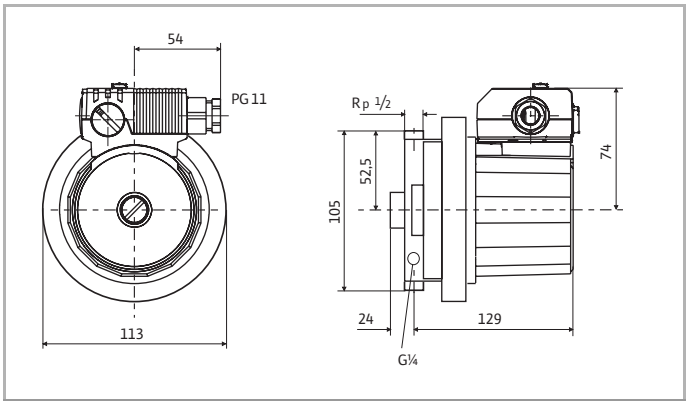
Dimension drawing A



Dimension drawing B



Dimension drawing C



Motor horizontal,
terminal-box position possible for 3, 9 and 12 o'clock

Dimensions, weights

	Pipe connection/ nominal dia.	Thread	Pump dimensions			Weight approx.	Dimension drawing
	[Rp/DN]	G	l_0	l_1	b_3	–	–
	–	–	[mm]			[kg]	–
Star ST 20/4	Rp ½	1	79	97	73	2.43	A
Star ST 25/4	Rp 1	1 ½	79	97	73	2.43	A
Star ST 20/6	Rp ½	1	79	97	73	2.45	A
Star ST 25/6	Rp 1	1 ½	79	97	73	2.45	A
Star ST 20/7	Rp ½	1	91	109	76	2.9	A
Star ST 25/7	Rp 1	1 ½	91	109	76	2.9	A
Star ST 20/9	Rp ½	1	See dimension drawing			3.6	B
Star ST 20/11	Rp ½	1				4.0	B
Star ST 15/40	Rp ½	½				2.4	C