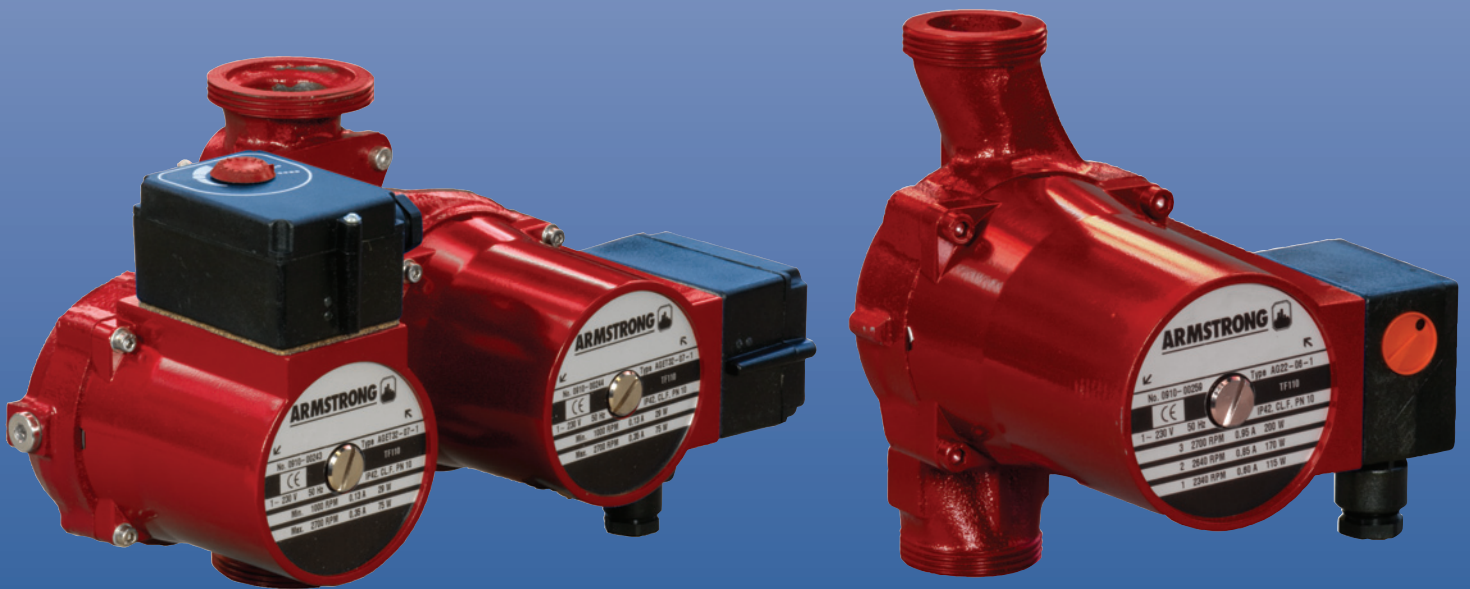


# ARMSTRONG



## AG Circulators

FILE NO:	10.126IN
DATE:	Apr. 15, 2010
SUPERSEDES:	New
DATE:	New

# The AG Circulator Series

- ▶ **Low capital cost**
- ▶ **Reduced life-cycle cost**
- ▶ **High longevity**
- ▶ **Reliability**
- ▶ **Easy installation**
- ▶ **Compact**
- ▶ **Best practise operation**
- ▶ **Risk management reduction**
- ▶ **Flexible operation**



Using computer aided-design and advanced production technology, Armstrong has designed the new AG circulators to provide quiet operation over a long life. Armstrong AG circulators provide flow solutions for installations requiring compact, reliable operation and reduced life-cycle costs.

With flow rates to 20 L/s and heads up to 150 kPa, all the AG circulators are designed to handle working pressures up to 10 bar and temperatures to 120°C.

## ▶ **Low Cost, Low Noise and Long Life**

Running costs can be reduced, pipe noise levels minimised and life at the circulator extended by using the easily adjustable multi-speed capability of AG. Smaller AG sizes have a choice of 3 speeds, while commercial sizes offer a choice of 4 speeds.

## ▶ **Energy Reduction C to E Rated**

Replacing single speed circulators with AG circulators results in a significant reduction in energy costs. AG circulators are rated C to E, depending on the size.

## ▶ **Risk Minimisation**

Specifying the AGT twin circulator provides built in redundancy and reduces risk. Combining two circulators in a common casing and sharing one inlet and one outlet connection allows duty and standby operation on a single pipeline with one pair of isolating valves. An automatic flap valve in the casing prevents back flow through the standby unit. AGT and AG have the same flange-to-flange dimensions.

## ▶ **Pipeline Mounting Arrangements**

- ▶ All AG circulators must be mounted with the shaft in the horizontal position
- ▶ Motor terminal box must be upright
- ▶ AGT twin circulators may be mounted in horizontal pipes as long as an automatic air vent is fitted to the high point of the uppermost head
- ▶ AGB bronze circulators must be mounted in vertical pipework and the flow direction must be upwards

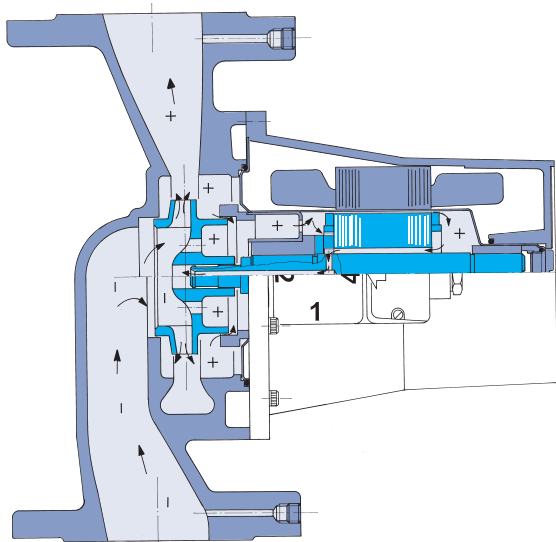
## ▶ **Long Life**

Long life is assured using rugged close-grained cast iron casings for heating (AG and AGT) and bronze for hot water applications (AGB). Smooth operation is ensured by using a stainless steel shaft, hardened where it runs in amply sized carbon bearing bushes, lubricated by the pumped medium. The ability to select motor speeds also leads to a long operating life.

# AG Circulators

## ► Reliable Operation on Hot Water

AGB Bronze circulators face the threat of solids entrained in fresh water and lime dropping out of solution as the water heats up. All AGB Bronze circulators are fitted with a patented filter that keeps the motor rotor free from this potential solid build up and allows long life and reliable operation.



## ► Quiet Smooth Operation

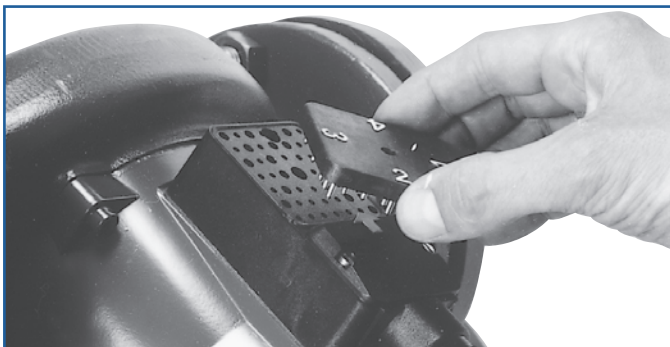
For the larger sizes the dynamically balanced impeller is constructed from close grained cast iron for quiet, smooth operation. Impellers on smaller sizes are fabricated from composite material.

## ► Reliability

The one-piece stainless steel can allows more effective isolation between the rotor and the starter, and guarantees reliable operation.

## ► Best Practise Operation and Flexible Application

Armstrong AG circulators can be mounted in vented and unvented systems due to their low static head requirement.



The numbers below are expressed at 82°C.

1450 rpm sizes require 2 m static head

2900 rpm sizes up to 52-08 require 2.5 m static head

2900 rpm sizes 52-11 and larger require 3 m static head

## ► Product Nomenclature Explanation

AG	Armstrong Glandless
T	Twin pump with duty/standby
B	Bronze body for HWS secondary use
First digit	Nominal Bore size 2 = 25 mm; 3 = 32 mm; 4 = 40 mm; 5 = 50 mm; 6 = 65 mm; 8 = 80 mm
Second digit	Number of poles in motor. 2 = 2 pole; 4 = 4 pole
Third and fourth digits	Maximum Head Generated E.g. 05 = 50 kPa
Last digit	Power supply 1=230/1/50; 3=400/3/50

## ► Easy Commissioning

Measuring the head generated by the AG circulator is easy, as all flanged sizes are fitted with tapped drillings on the inlet and outlet, allowing for connection of pressure measurement instrumentation.

## ► Installation Cost Reduction

There is no need to stock special counter flanges when fitting AG circulators. Flanges on all AG sizes up to and including 65 mm nominal bore are double drilled to PN6 and PN10 allowing use of either type of counter flange.

## ► AG Sound Pressure Level

43 dBa at 1 m distance - sizes up to AG and AGT52-07

55 dBa at 1 m distance - sizes AG and AGT52-11 and larger.

## ► Design Limits

Temperature: Maximum 120°C on heating applications

Minimum -15°C

Temperature: Maximum 65°C on HWS secondary application

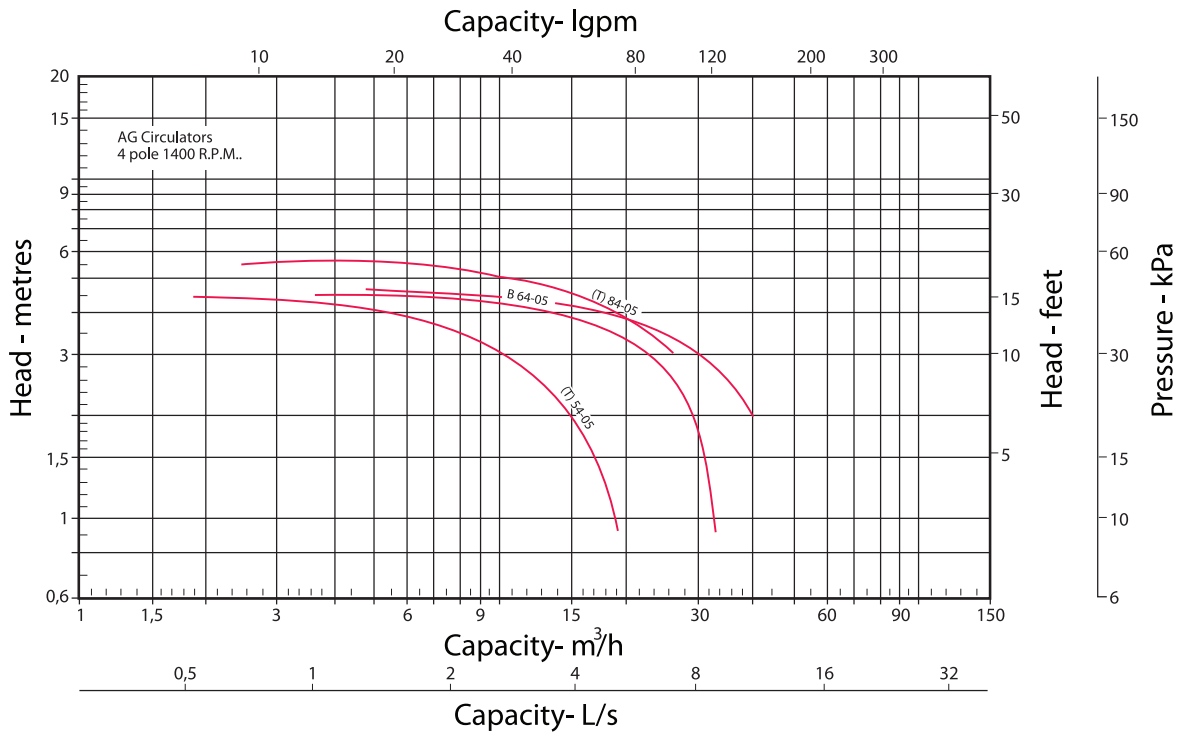
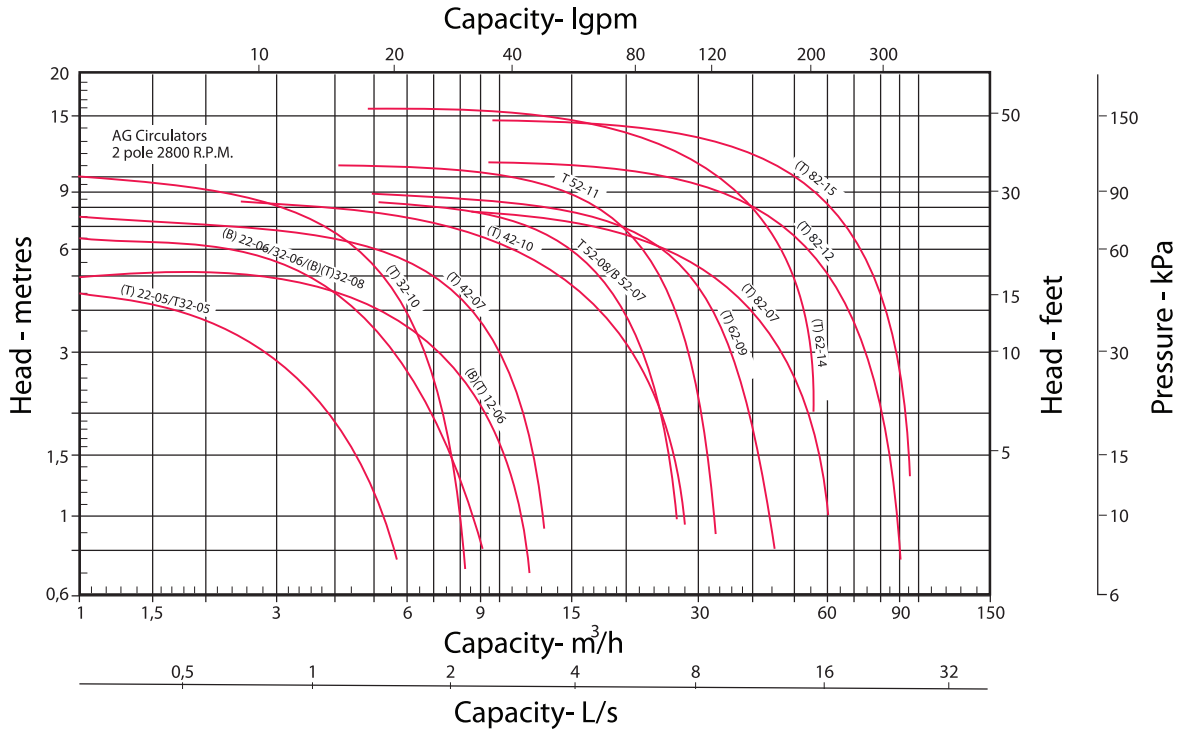
Pressure: Maximum 10 bar

Glycol %: Maximum 50% aqueous solution

Internationally Approved

All units are CE marked and assembled in ISO registered facilities.

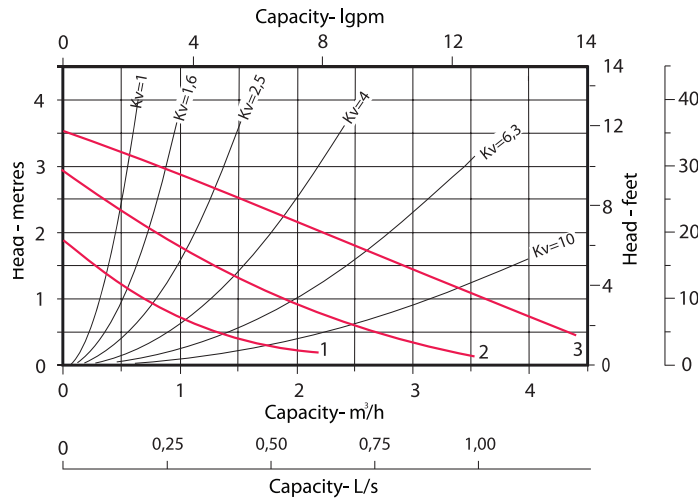
► Performance Curves



The models in this catalogue cover the complete multispeed glandless AG range. See the AGE catalogue for details of the electronic variable speed glandless range. For larger duties than those covered by the AG range, please see the leaflets for 4300, 4380, 4392, 4302, 4382 and Sensorless.

(T) = Available as twin circulator.

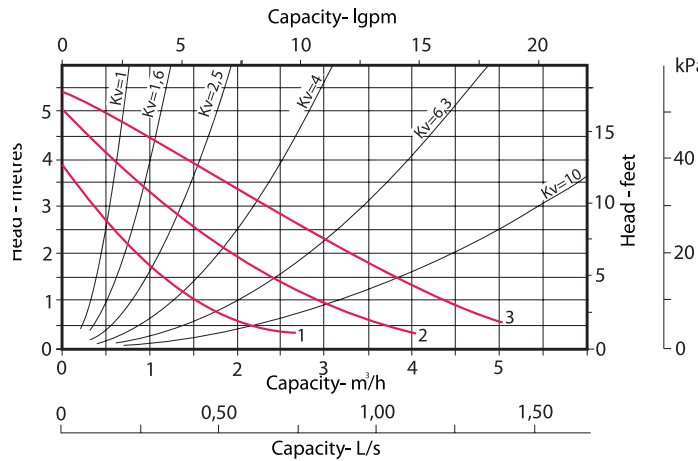
# AG Circulators



Union  $\frac{3}{4}$ "-1"  $\frac{1}{4}$ "

AGB22-05-1 HWS Bronze  
External motor protection is not needed with these pumps.

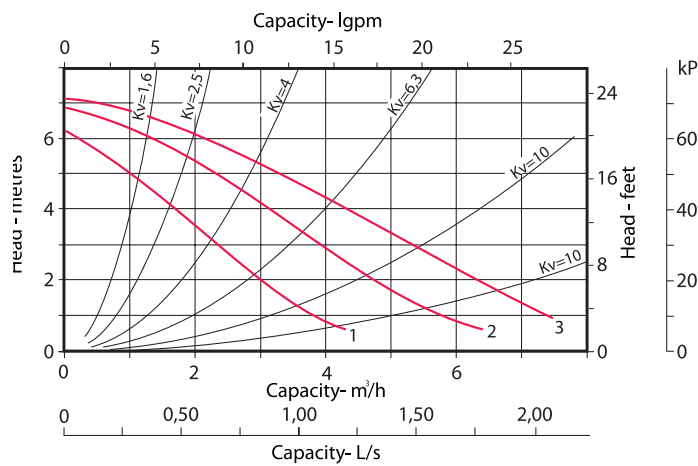
Speed No.	R.P.M.	Absorbed Power	F.L.C.Amps		
			1 x 230	3 x 230	3 x 400
3	2350	50-65	0,30	0,34	0,20
2	1850	40-50	0,23	-	-
1	1200	30-35	0,16	-	-
See wiring diagram			1.K	H	G



Union  $\frac{3}{4}$ "-1"  $\frac{1}{4}$ "

AG 22-05-1  
AG T 32-05-1 (Twin Circulator)  
AG T 32-05-3 (Twin Circulator)  
AGB22-06-1 Bronze Circulator Heating/chilled  
External motor protection is not needed with these circulators.

Trin	O/min	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
3	2350	90-115	0,55	0,25
2	1850	65-85	0,40	
1	1200	45-55	0,25	
See wiring diagram			1.K	G



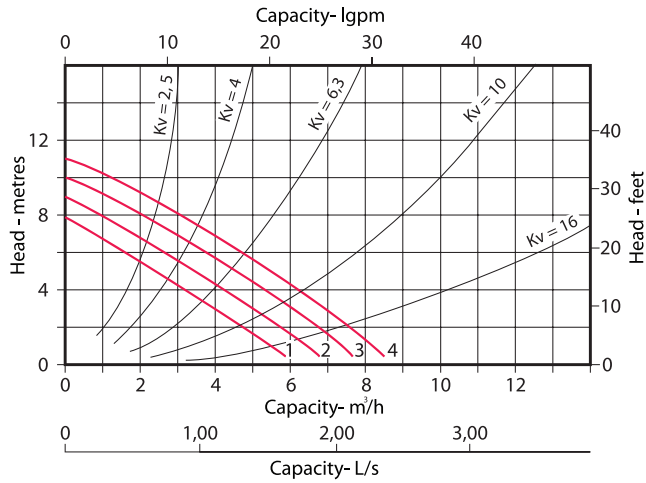
Union  $\frac{3}{4}$ "-1"  $\frac{1}{4}$ "

AG 22-06-1  
AG 32-06-1  
AG T32-08-1 (Twin Circulator)  
AGB32-08-1 Bronze Circulator Heating/chilled

Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2750	130-210	-	0,42
3	2700	130-200	0,95	0,33
2	2640	100-170	0,85	0,25
1	2340	85-115	0,60	0,20
See wiring diagram			1.K	3.E

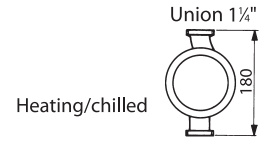
AG(B)(T)32-08/06, 3x400V = 4 speed

Capacity curves according to EN 1151/29906 grade 2. The capacities of the twin circulators are 10% less than the single circulator curves shown.

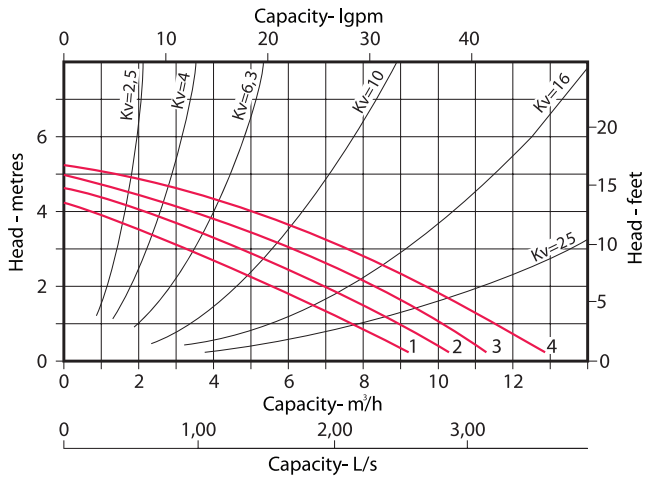


kPa  
 Pressure - kPa

AG 32-10-1  
 AG 32-10-3  
 AG T 32-10-1 (Twin Circulator)  
 AG T 32-10-3 (Twin Circulator)

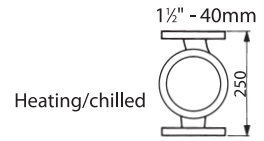


Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2750	200-290	1,40	0,55
3	2640	180-250	1,30	0,45
2	2480	150-210	1,20	0,37
1	2340	130-170	1,10	0,28
See wiring diagram			2.B	3.F



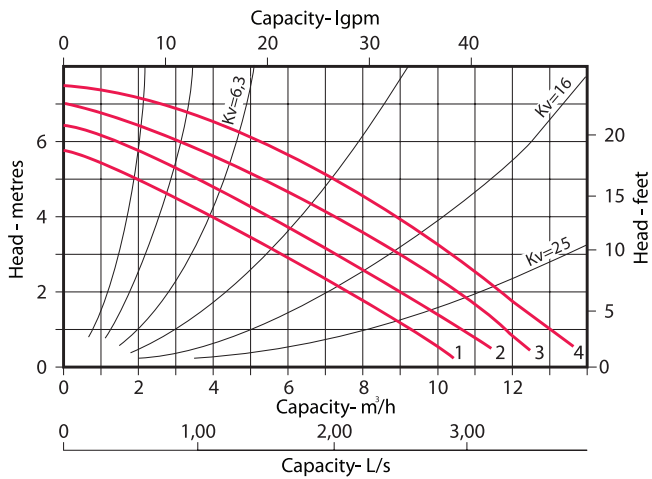
kPa  
 Pressure - kPa

AG T 42-06-1 (Twin Circulator)  
 AG T 42-06-3 (Twin Circulator)  
 AG B 42-06-3 (Bronze Circulator)



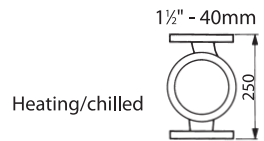
1 x 230 V = 3 speed

Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2750	130-225	-	0,50
3	2640	95-188	1,00	0,36
2	2480	73-156	1,00	0,28
1	2340	64-128	0,88	0,23
See wiring diagram			1.K	3.E



kPa  
 Pressure - kPa

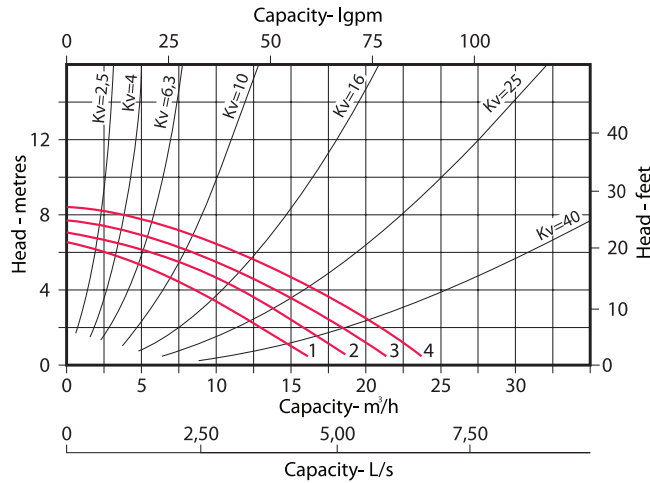
AG 42-07-1  
 AG 42-07-3  
 AG T42-07-1 (Twin Circulator)  
 AG T42-07-1 (Twin Circulator)



Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2750	130-300	1,35	0,55
3	2640	120-260	1,25	0,45
2	2480	100-220	1,15	0,37
1	2340	90-175	1,00	0,30
See wiring diagram			2.B	3.F

Capacity curves according to EN 1151/29906 grade 2. The capacities of the twin circulators are 10% less than the single circulators curves shown.

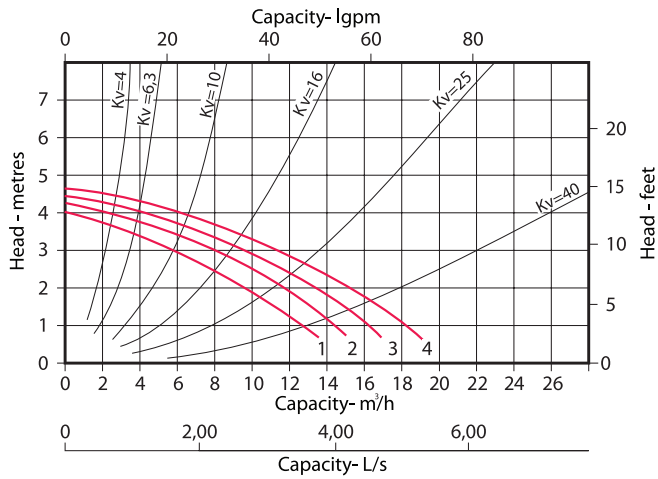
# AG Circulators



AG 42-10-1  
AG 42-10-3  
AG T42-10-1 (Twin Circulator)  
AG T42-10-3 (Twin Circulator)

Heating/chilled

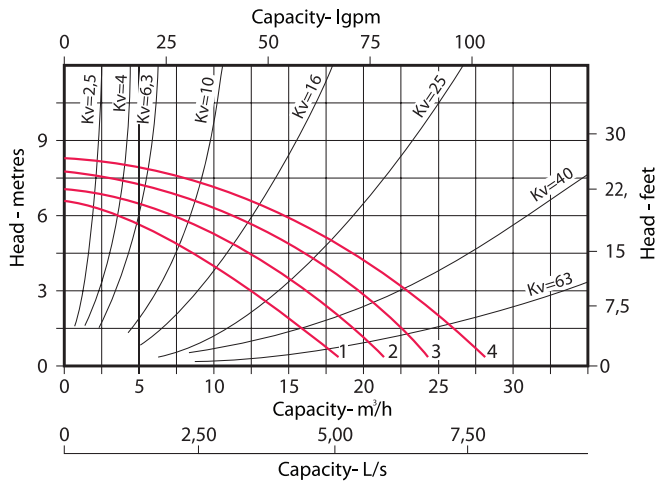
Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2650	330-580	2,50	1,10
3	2450	300-550	2,50	0,90
2	2270	280-500	2,40	0,80
1	1930	250-425	2,1	0,70
See wiring diagram			3.C	3.F



AG 54-05-1  
AG 54-05-3  
AG T54-05-1 (Twin Circulator)  
AG T54-05-3 (Twin Circulator)

Heating/chilled

Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	1340	190-330	1,80	0,88
3	1250	160-300	1,40	0,67
2	1100	130-260	1,30	0,55
1	980	120-220	1,20	0,45
See wiring diagram			3.C	3.F

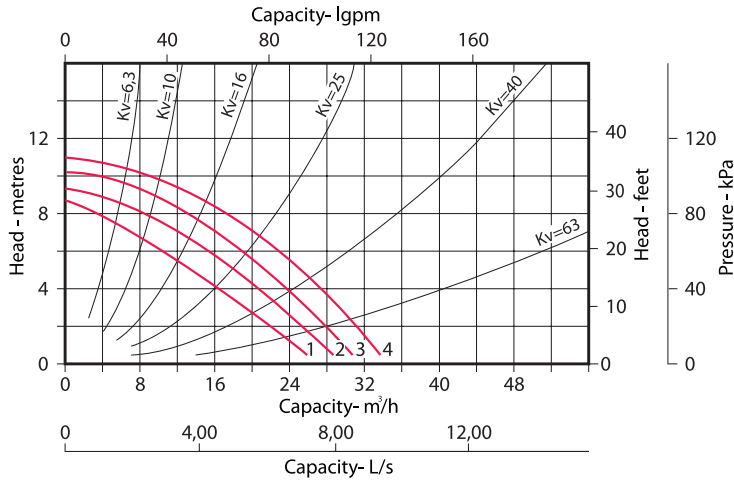


AG 52-08-1  
AG 52-08-3  
AG T52-08-1 (Twin Circulator)  
AG T52-08-3 (Twin Circulator)  
AG B52-07-3 (Bronze Circulator)

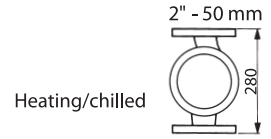
Heating/chilled

Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2650	350-650	2,70	1,20
3	2450	300-600	2,70	1,00
2	2270	280-500	2,50	0,90
1	1930	250-450	2,20	0,75
See wiring diagram			3.C	3.F

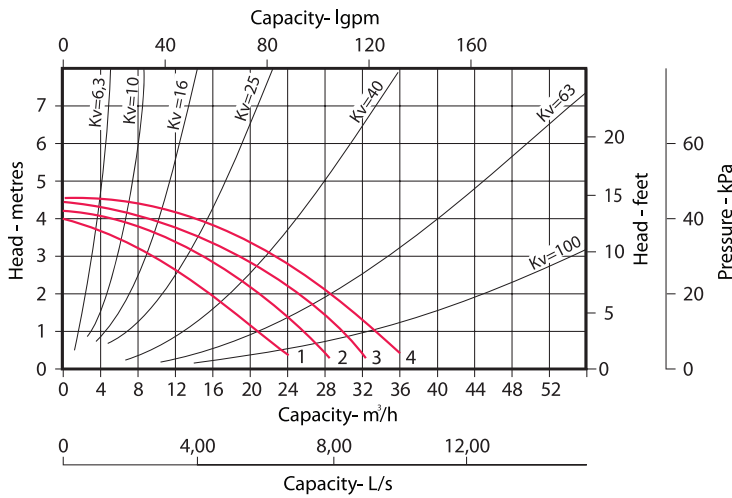
Capacity curves according to EN 1151/29906 grade 2. The capacities of the twin circulators are 10% less than the single circulator curves shown.



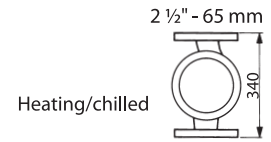
AG 52-11-1  
AG 52-11-3  
AG T52-11-1 (Twin Circulator)  
AG T52-11-3 (Twin Circulator)



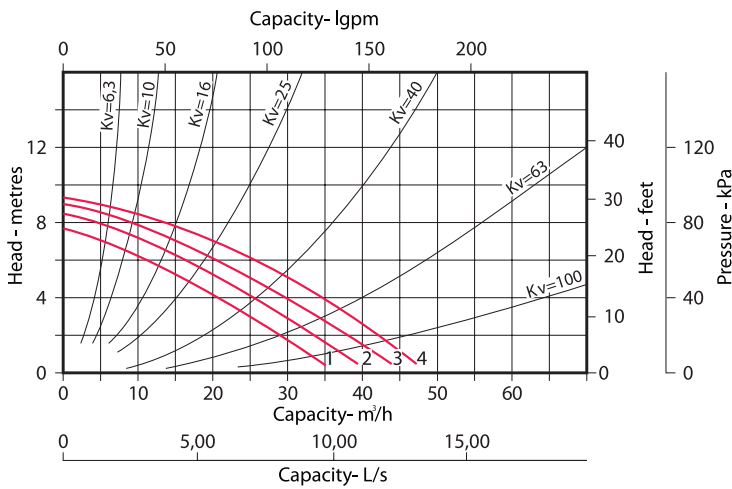
Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2650	600-980	4,70	2,00
3	2450	460-820	4,10	1,45
2	2270	400-710	3,85	1,20
1	1930	350-600	3,30	1,00
See wiring diagram			3.C	3.F



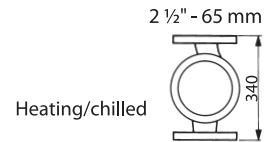
AG 64-05-1  
AG 64-05-3  
AG T64-05-1 (Twin Circulator)  
AG T64-05-3 (Twin Circulator)



Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	1380	250-490	2,50	1,15
3	1330	210-450	2,20	0,95
2	1260	180-390	2,00	0,80
1	1180	160-340	1,80	0,65
See wiring diagram			3.C	3.F



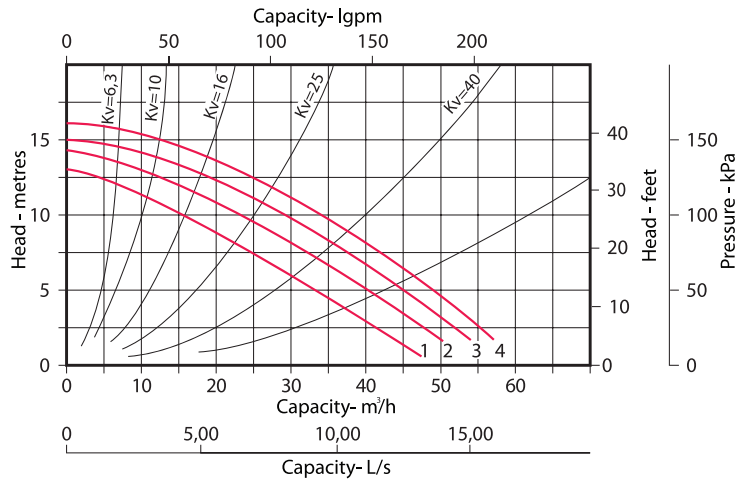
AG 62-09-1  
AG 62-09-3  
AG T62-09-1 (Twin Circulator)  
AG T62-09-3 (Twin Circulator)



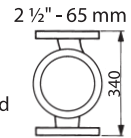
Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2800	680-1070	4,50	2,10
3	2680	560-920	2,45	1,58
2	2560	500-790	2,00	1,35
1	2380	425-660	1,65	1,15
See wiring diagram			3.C	3.F

Capacity curves according to EN 1151/29906 grade 2. The capacities of the twin circulators are 10% less than the single circulator curves shown.

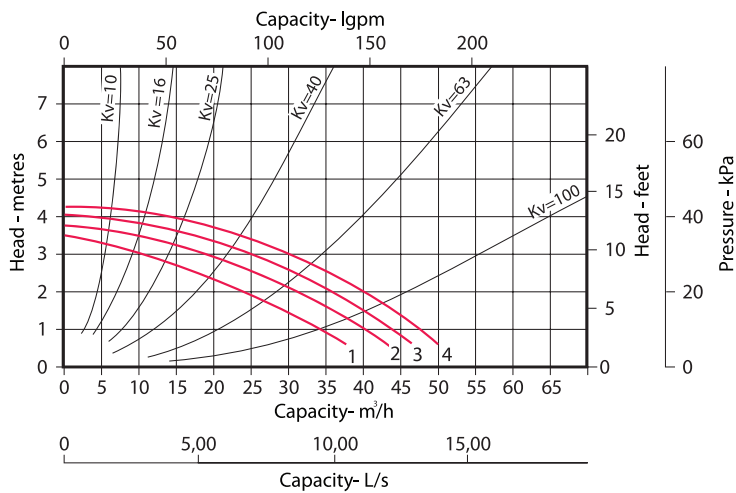
# AG Circulators



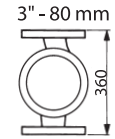
AG 62-14 -1  
 AG 62-14 -3  
 AG T62-14 -1 (Twin Circulator)  
 AG T62-14 -3 (Twin Circulator)



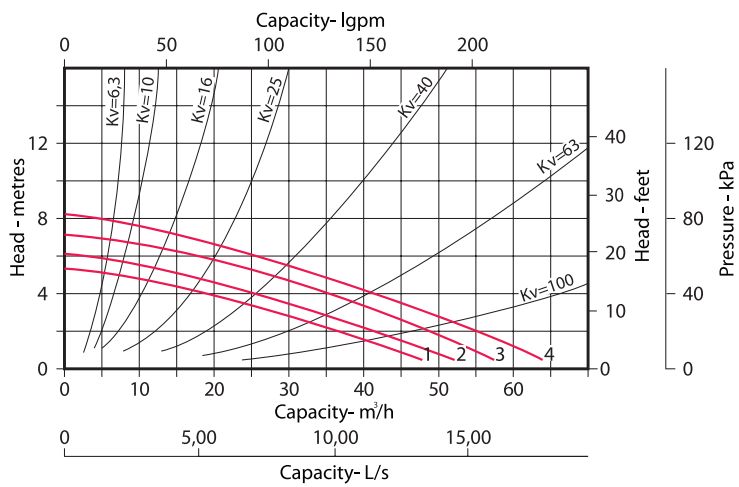
Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2800	1200-2180	9,20	3,80
3	2660	1100-2050	8,40	3,50
2	2490	1000-1850	7,80	3,10
1	2280	0900-1550	6,80	2,70
See wiring diagram			D	3.F



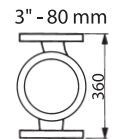
AG 84-05-1  
 AG 84-05-3  
 AG T84-05-1  
 AG T84-05-3



Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	1360	375-574	3,00	1,59
3	1290	342-531	2,75	1,23
2	1210	302-473	2,65	1,03
1	1110	270-416	2,53	0,90
See wiring diagram			3.C	3.F

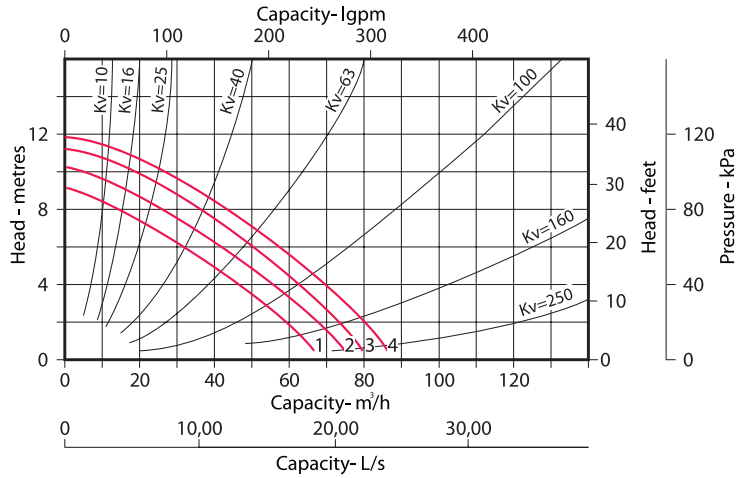


AG 82-07-1  
 AG 82-07-3  
 AG T82-07-1 (Twin Circulator)  
 AG T82-07-3 (Twin Circulator)

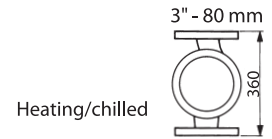


Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2800	1060-1187	6,20	2,20
3	2680	963-1087	5,80	2,00
2	2560	875-992	4,60	1,72
1	2380	750-827	3,80	1,50
See wiring diagram			3.C	3.F

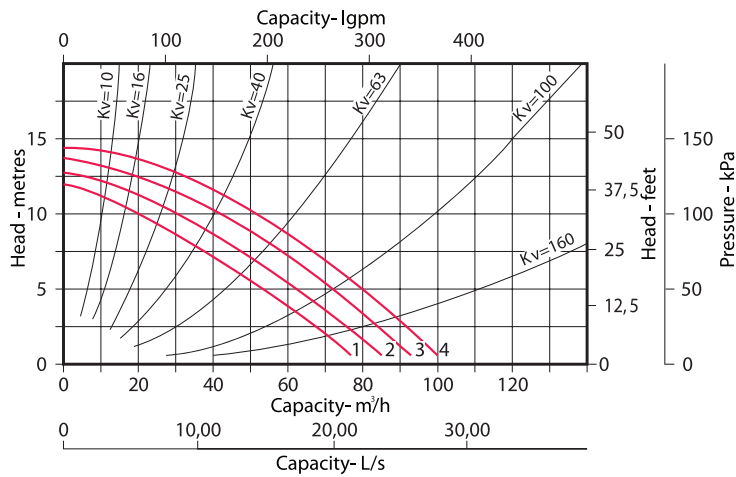
Capacity curves according to EN 1151/29906 grade 2. The capacities of the twin circulators are 10% less than the single circulator curves shown.



AG 82-12-1  
 AG 82-12-3  
 AG T82-12-1 (Twin Circulator)  
 AG T82-12-3 (Twin Circulator)



Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2800	1500-2100	10,00	3,70
3	2660	1400-1900	9,50	3,30
2	2490	1250-1700	8,70	3,00
1	2280	1150-1500	7,60	2,60
See wiring diagram			3.D	3.F



AG 82-15-3  
 AG T82-15-3 (Twin Circulator)

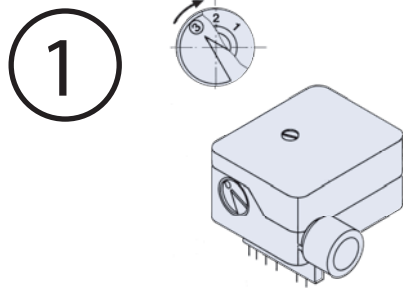


Speed No	RPM	Absorbed Power	FLC Amps	
			1 x 230	3 x 400
4	2800	1850-2800	-	4,80
3	2660	1700-2550	-	4,40
2	2490	1550-2250	-	3,90
1	2280	1400-1850	-	3,30
See wiring diagram				3.F

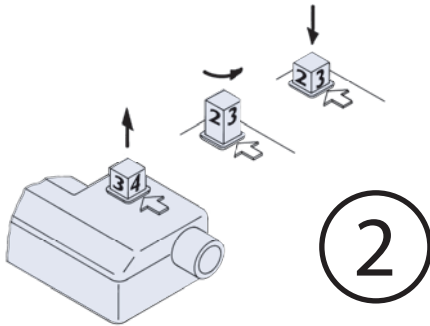
Capacity curves according to EN 1151/29906 grade 2. The capacities of the twin circulators are 10% less than the single circulator curves shown.

# AG Circulators

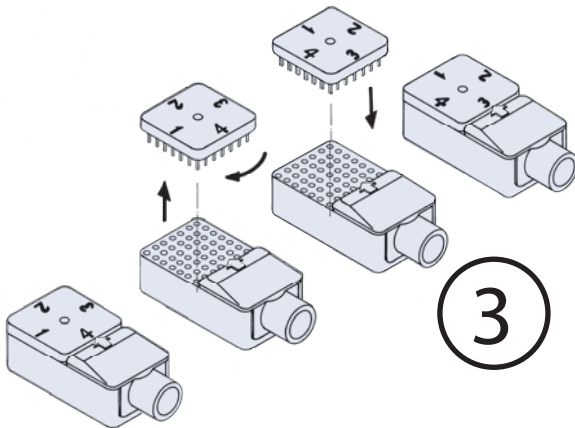
## ► Speed Adjustments for AG Range



Domestic 3-speed single-phase.



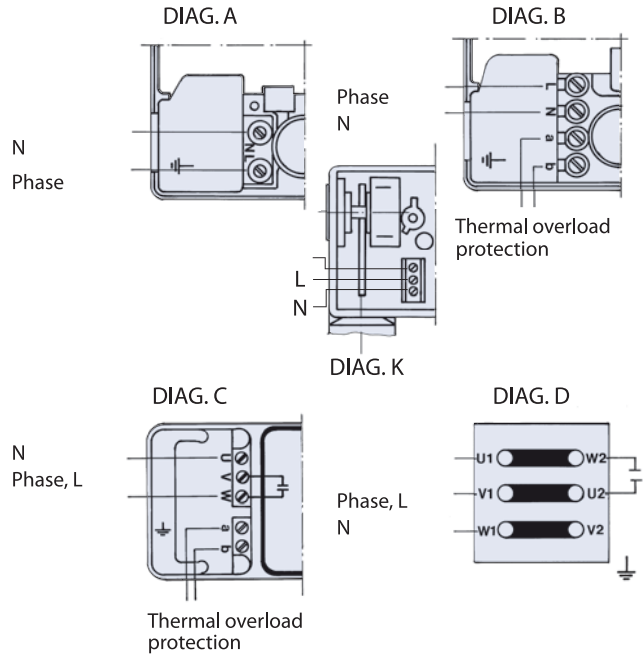
Light commercial 4-speed single-phase



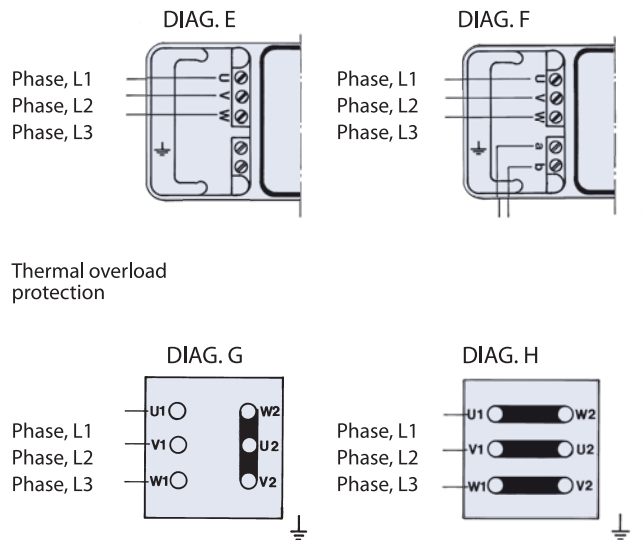
Commercial 4-speed single and 3-phase.

## ► Wiring Details for AG Range

### Single phase



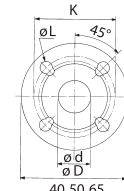
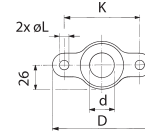
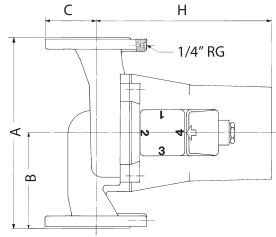
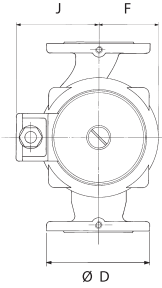
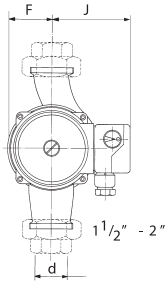
### Three phase



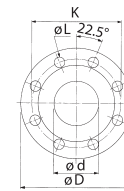
Note: Above wiring diagrams are cross referenced on the individual pump curves.

## ► Dimensions:

### Single pump

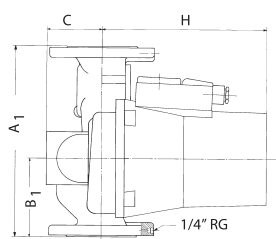
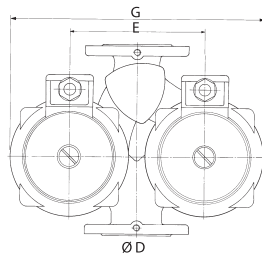
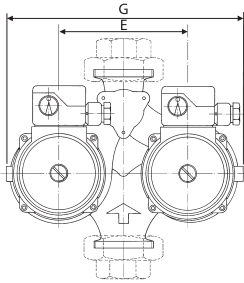


40, 50, 65  
PN 10, DIN 2533



80, 100, 125  
PN 16, DIN 2533

### Twin pump



Type	A	A1	B	B1	C	C1	D	d	E	F	G	H	J	PN 6		PN 10		Weight (kg)	
														K	L	K	L	Single	Double
AGB22-05	130	180	90	75	40	40	-	1"	130	50	245	110	85	-	-	-	-	3,0	6,4
AG(T)32-05	180	180	90	75	40	40	-	1 1/4"	130	50	245	110	85	-	-	-	-	3,2	6,8
AGB22-06-1	180	180	90	75	40	40	-	1"	-	50	-	110	85	-	-	-	-	3,2	-
AG 22/32-06	180	180	90	75	40	40	-	1"-1 1/4"	-	50	-	145	85	-	-	-	-	4,5	-
AG(T)32-08	-	180	-	75	-	40	-	1 1/4"	130	-	245	145	-	-	-	-	-	-	8,5
AGB32-08	180	-	90	-	40	40	-	1 1/4"	-	50	-	145	85	-	-	-	-	4,5	-
AG(T)32-10	180	180	90	75	32	50	-	1 1/4"	160	65	305	180	95	-	-	-	-	6,3	13,3
AG(B)(T)42-06	250	250	125	90	75	75	150	40	200	75	350	160	90	100	14	110	19	10,0	18,2
AG(T)42-07	250	250	125	90	75	75	150	40	200	75	350	165	95	100	14	110	19	11,3	19,0
AG(T)42-10	250	250	125	90	75	75	150	40	200	75	350	200	105	100	14	110	19	14,2	25
AG(T)54-05	280	280	140	120	83	83	165	50	200	85	390	200	105	110	14	125	19	17,6	33
AG(T)52-08	280	280	140	120	83	83	165	50	200	85	390	200	105	110	14	125	19	17,5	29,5
AGB52-07	280	-	140	-	83	83	165	50	-	85	-	200	105	110	14	125	19	17,5	-
AG(T)52-11	280	280	140	120	83	83	165	50	200	95	390	230	125	110	14	125	19	28,6	52
AG(T)64-05	340	340	170	140	93	93	185	65	240	105	455	235	125	130	14	145	19	34,5	58,5
AG(T)62-09	340	340	170	140	93	93	185	65	240	105	455	235	125	130	14	145	19	35	60,5
AG(T)62-14	340	340	170	140	93	93	185	65	240	105	455	280	125	130	14	145	19	41,5	72
AG(T)84-05	360	360	185	160	100	102	200	80	270	105	510	240	130	-	-	160	19	42	72,5
AG(T)82-07	360	360	185	160	100	102	200	80	270	105	505	240	125	-	-	160	19	42	72,5
AG(T)82-12	360	360	185	160	100	100	200	80	270	105	510	290	125	-	-	160	19	49,5	85,5
AG(T)82-15	360	360	185	160	100	100	200	80	270	105	510	290	125	-	-	160	19	50	84,5

When both PN6 and PN10 are shown, the circulator is supplied with flanges double drilled to facilitate replacement of other circulators.

Note: 80 mm circulators can be supplied with PN6 flanges to special order. (T) = Available as twin circulator.

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