PRODUCT CATALOG

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Hydraulic performance tables

EH 3-5-9-15-20 AT 50 HZ

Pump model	Q = DELIVERY																							
	l/min 0	25	33	42	50	58	67	75	83	92	100	117	133	150	167	183	233	267	300	333	367	417	467	483
	m^3/h 0	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8	9	10	11	14	16	18	20	22	25	28	29
	US GMP 0	6.6	8.8	11.0	13.2	15.4	17.6	19.8	22.01	24.2	26.4	30.8	35.2	39.6	44.02	48.4	61.6	70.4	79.2	88.05	96.8	110.07	123.2	127.6
	H = TOTAL M.HEAD OF WATER COLUMN [m]																							
EH 3/2	23	21	19.5	18	16.5	14.5	12.5	10																
EH 3/3	33.5	30.5	29	26.5	24	21	17.5	14																
EH 3/4	44.5	40	37.5	34.5	31	27	23	18																
EH 3/5	55	49	46	42	37	32.5	27	21																
EH 3/6	67.5	61	57	53	47	41.5	35	28																
EH 3/7	78	70.5	66	60.5	54	47.5	40	32																
EH 3/8	90	82	77	71	64	56	47	38																
EH 3/9	101	91.5	85.5	79	70.5	61.5	52	41																
EH 5/2	23.5		21.5	21	20.5	19.5	19	18	17	16	15	11.5												
EH 5/3	34.5		31.5	31	29.5	28.5	27.5	26	25	23	21	16												
EH 5/4	46.5		43	42	41	39.5	38	36	34	32	29	23												
EH 5/5	58		53	51.5	50	48.5	46.5	44	41.5	38.5	35.5	27.5												
EH 5/6	70		64.5	63	61	59	56.5	54	51	47.5	43.5	34												
EH 5/7	81.5		74.5	72.5	70	68	65	61.5	58	54	49.5	38.5												
EH 5/8	92.5		84	82	79	76.5	73	69	65	60	54.5	42												
EH 5/9	104		95.5	93	90.5	87.5	83.5	79.5	75	70	64	50												
EH 9/2	23.5				22	21.5	21	20.5	20	20	19.5	18.5	18	17	15.5	13.5	6.5							
EH 9/3	35.5				33	32.5	32	31.5	31	30.5	30	28.5	27.5	26	24	21	11							
EH 9/4	48				45	44.5	43.5	43	42	41.5	41	39.5	38	36	33	29.5	16							
EH 9/5	59.5				55.5	55	54	53	52	51	50	48.5	46.5	44	40.5	36	18.5							
EH 9/6	71				66	65	64	62.5	61.5	60	59	57	54.5	51	47	41.5	21							
EH 9/7	84				79.5	78.5	77.5	76	74.5	73.5	72	70	67	64	59.5	53.5	29.5							
EH 9/8	96				90.5	89.5	88	86	84.5	83	82	79.5	76	72.5	67	60	32.5							
EH 15/2	29												26	25.5	25.5	25	23	21.5	19.5	17.5	14.5	9.5		
EH 15/3	44												39.5	39	38	37.5	34.5	32.5	29.5	26	22	14.5		
EH 15/4	58.5												53	52	51.5	50.5	47	44	40	35.5	30	20		
EH 15/5	73												65.5	64.5	63.5	62.5	57.5	54	49	43.5	36.5	24		
EH 15/6	87.5												79.5	78	77	75.5	71	67	61.5	54	46	31.5		
EH 15/7	102												92	90.5	89	87.5	82	77.5	70.5	62	52.5	36		
EH 20/2	31												28.5	28	27.5	27	26	25	24	22.5	20.5	16.5	12	10
EH 20/3	46.5												43	42.5	41.5	41	39.5	38	36.5	34.5	31.5	25.5	19	16
EH 20/4	62.5												58	57	56	55.5	53.5	51.5	49.5	46.5	42.5	34.5	26	22
EH 20/5	78.5												72.5	71.5	70.5	69.5	67	64.5	62	58.5	53.5	43.5	32.5	28

* Hydraulic performance figures refer to individual pumps

EH DTm 3-5-9 AT 60 HZ

System model	Q = DELIVERY																		
	l/min 0	33	42	50	58	67	75	83	92	100	117	133	141.7	167	200	233	267	283.3
	m^3/h 0	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8	8.5	10	12	14	16	17
	US GMP 0	8.8	11.0	13.2	15.4	17.6	19.8	22.0	24.2	26.4	30.8	35.2	37.5	44.0	52.8	61.6	70.4	74.8
	H = TOTAL M.HEAD OF WATER COLUMN [m]																	
EH DTm 3/3T6	47.5	41.0	38.5	35.5	32.5	29.5	26.0	22.5	18.5									
EH DTm 3/5T6	80.5	70.5	66.0	62.0	57.0	51.5	46.0	40.0	33.0									
EH DTm 3/7T6	113.0	99.0	93.5	87.0	80.5	73.0	65.0	56.5	47.0									
EH DTm 5/3T6	50.5		46.0	45.0	44.0	42.5	41.5	40.0	38.0	36.5	32.0	27.0	23.5					
EH DTm 5/5T6	85.0		79.0	77.0	75.5	73.5	71.5	69.0	66.5	64.0	57.0	48.0	43.0					
EH DTm 9/3T6	52.5									46.5	45.0	44.0	43.5	41.0	37.0	30.5	22.5	17.5

* Hydraulic performance figures refer to individual pumps

EM 3-5-9 / 1~ AT 50 HZ

Pump model	Q = DELIVERY																
	l/min 0	25	33	42	50	58	67	75	83	92	100	117	133	150	167	183	233
	m^3/h 0	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8	9	10	11	14
	US GMP 0	6.6	8.8	11.0	13.2	15.4	17.6	19.8	22.0	24.2	26.4	30.8	35.2	39.6	44.0	48.4	61.6
	H = TOTAL M.HEAD OF WATER COLUMN [m]																
EM 3/2	22.5	20.5	19.0	17.5	16.0	14.0	12.0	10.0									
EM 3/3	33.5	30.0	28.0	26.0	23.0	20.5	17.5	14.0									
EM 3/4	44.0	39.0	36.5	33.5	30.0	26.0	22.0	18.0									
EM 3/5	54.5	48.0	44.5	40.5	36.0	31.5	26.5	21.0									
EM 3/6	66.5	59.0	55.0	50.5	45.5	40.0	34.0	27.0									
EM 3/7	77.0	68.0	63.5	58.0	52.0	45.5	38.5	30.5									
EM 3/8	89.0	78.5	73.0	67.0	60.0	53.0	44.5	36.0									
EM 3/9	99.5	87.5	81.0	74.0	66.0	58.0	48.5	38.5									
EM 5/2	23.0		21.5	21.0	20.5	19.5	19.0	18.0	17.0	16.0	15.0	12.0					
EM 5/3	34.0		31.5	30.5	29.5	28.5	27.0	26.0	24.5	23.0	21.0	16.0					
EM 5/4	45.5		42.5	41.5	40.0	39.0	37.0	35.5	33.5	31.5	29.0	22.5					
EM 5/5	56.5		52.5	51.0	49.0	47.5	45.5	43.0	41.0	38.0	35.0	26.7					
EM 5/6	68.5		63.0	61.5	59.5	57.5	55.0	52.0	49.0	46.0	42.0	32.5					
EM 5/7	79.5		73.0	70.5	68.0	65.5	62.5	59.0	55.5	51.5	47.0	35.5					
EM 5/8	92.0		86.0	84.0	81.5	79.0	76.0	72.5	69.0	64.5	60.0	47.0					
EM 5/9	103.0		96.0	94.0	91.0	88.0	85.0	81.0	76.5	72.0	66.0	52.0					
EM 9/2	23.5				22.5	22.0	21.5	21.0	21.5	20.5	20.0	19.0	18.5	17.0	16.0	14.0	6.5
EM 9/3	35.5				33.5	33.0	32.5	32.0	31.5	31.0	30.0	29.0	28.0	26.0	24.0	21.0	10.5
EM 9/4	47.0				44.5	44.0	43.5	42.5	42.0	41.5	40.5	39.0	37.5	35.5	32.5	29.0	14.5
EM 9/5	59.5				57.0	56.5	56.0	55.0	54.0	53.5	52.5	51.0	49.0	46.5	43.0	39.0	21.0
EM 9/6	71.0				67.5	67.0	66.0	65.0	64.0	63.0	62.0	60.0	57.5	54.5	50.0	44.5	23.5
EM 9/7	82.5				78.0	77.0	76.0	75.0	73.5	72.5	71.5	68.5	65.5	62.0	57.0	50.0	25.0

* Hydraulic performance figures refer to individual pumps

EM 3-5-9 / 3~ AT 50 HZ

Pump model	Q = DELIVERY																
	l/min 0	25	33	42	50	58	67	75	83	92	100	117	133	150	167	183	233
	m^3/h 0	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8	9	10	11	14
	US GMP 0	6.6	8.8	11.0	13.2	15.4	17.6	19.8	22.0	24.2	26.4	30.8	35.2	39.6	44.0	48.4	61.6
	H = TOTAL M.HEAD OF WATER COLUMN [m]																
EM 3/2	22.5	20.5	19.0	17.5	16.0	14.0	12.0	10.0									
EM 3/3	33.5	30.0	28.0	26.0	23.0	20.5	17.5	14.0									
EM 3/4	44.0	39.0	36.5	33.5	30.0	26.0	22.0	18.0									
EM 3/5	54.5	48.0	44.5	40.5	36.0	31.5	26.5	21.0									
EM 3/6	66.0	58.0	54.0	49.5	44.5	39.0	33.0	26.0									
EM 3/7	76.5	67.0	62.0	57.0	51.0	44.0	37.0	29.5									
EM 3/8	89.0	78.5	73.0	67.0	60.0	53.0	44.5	36.0									
EM 3/9	99.5	88.0	82.0	75.5	68.0	59.5	50.5	40.5									
EM 5/2	23.0		21.5	21.0	20.5	19.5	19.0	18.0	17.0	16.0	15.0	12.0					
EM 5/3	34.0		31.5	30.5	29.5	28.5	27.0	26.0	24.5	23.0	21.0	16.0					
EM 5/4	45.5		42.5	41.5	40.0	39.0	37.0	35.5	33.5	31.5	29.0	22.5					
EM 5/5	56.5		52.0	50.0	48.5	46.5	44.5	42.0	40.0	37.0	34.0	26.0					
EM 5/6	68.5		63.5	62.0	60.0	58.0	55.5	53.0	50.0	47.0	43.0	33.5					
EM 5/7	79.5		73.0	71.0	69.0	66.5	63.5	60.5	57.0	53.5	49.0	38.0					
EM 5/8	92.0		86.0	84.0	81.5	79.0	76.0	72.5	69.0	64.5	60.0	47.0					
EM 5/9	103.0		96.0	94.0	91.0	88.0	85.0	81.0	76.5	72.0	66.0	52.0					
EM 9/2	23.5				22.5	22.0	21.5	21.0	21.5	20.5	20.0	19.0	18.5	17.0	16.0	14.0	6.5
EM 9/3	35.5				33.5	33.0	32.5	32.0	31.5	31.0	30.0	29.0	28.0	26.0	24.0	21.0	10.5
EM 9/4	47.0				44.5	44.0	43.5	42.5	42.0	41.5	40.5	39.0	37.5	35.5	32.5	29.0	14.5
EM 9/5	59.5				57.0	56.5	56.0	55.0	54.0	53.5	52.5	51.0	49.0	46.5	43.0	39.0	21.0
EM 9/6	71.0				67.5	67.0	66.0	65.0	64.0	63.0	62.0	60.0	57.5	54.5	50.0	44.5	23.5
EM 9/7	83.5				79.5	79.0	78.0	77.0	76.0	75.0	74.0	71.5	69.0	65.5	61.0	54.5	30.0
EM 9/8	95.0				90.5	90.0	89.0	87.5	86.0	85.0	84.0	81.0	78.0	74.0	68.5	61.5	33.0

* Hydraulic performance figures refer to individual pumps

EM DTm 3-5-9 AT 60 HZ

System model	Q = DELIVERY																	
	l/min 0	33	42	50	58	67	75	83	92	100	117	133	141.6	167	200	233	266.6	283.3
	m^3/h 0	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8	8.5	10	12	14	16	17
	US GMP 0	8.8	11.0	13.2	15.4	17.6	19.8	22.01	24.2	26.4	30.8	35.2	37.4	44.02	52.8	61.6	70.4	74.8
	H = TOTAL M.HEAD OF WATER COLUMN [m]																	
EM DTm 3/3T6	48.0	41.5	39.0	36.5	33.5	30.0	26.5	23.0	19.0	14.0								
EM DTm 3/5T6	81.5	71.5	68.0	63.0	58.0	53.0	47.0	40.5	34.0	26.0								
EM DTm 3/7T6	114.5	101.0	95.5	89.0	82.0	74.5	66.5	57.5	48.0	37.0								
EM DTm 5/3T6	49.5		46.0	44.5	43.5	42.5	41.0	39.5	38.0	36.0	32.0	26.5	23.5					
EM DTm 5/5T6	83.5		78.0	76.5	75.0	73.0	71.0	68.5	66.0	63.0	56.5	48.0	42.5					
EM DTm 9/3T6	52.0									47.0	46.0	45.0	44.5	42.0	38.0	31.0	23.0	18.0

* Hydraulic performance figures refer to individual pumps

EV 1-3 AT 50 HZ

Pump model	RATED POWER		Q = DELIVERY									
			l/min 0	8.3	16.7	25.0	33.3	42	50.0	58.3	67	75.0
			m^3/h 0	0.5	1	1.5	2	2.5	3	3.5	4	4.5
	[kW]	[HP]	H = TOTAL M.HEAD OF WATER COLUMN [m]									
EV 1/2	0.37	0.5	14.5	13.5	12.5	11.5	9.5	7.5				
EV 1/3	0.37	0.5	21.5	20	19	17	14	11				
EV 1/4	0.37	0.5	28	26.5	24.5	22	18.5	14				
EV 1/5	0.37	0.5	35	33	30.5	27	22.5	17				
EV 1/6	0.37	0.5	41.5	39	36	32	26.5	19.5				
EV 1/7	0.37	0.5	48	45	41.5	36.5	30	22				
EV 1/8	0.55	0.75	55	52	48	42.5	35	26				
EV 1/9	0.55	0.75	61.5	58	53	47	39	28.5				
EV 1/10	0.55	0.75	68	64	58.5	51.5	43	31.5				
EV 1/11	0.55	0.75	74.5	69.5	64	56.5	46.5	34				
EV 1/12	0.75	1	83	78.5	72	64	53	39.5				
EV 1/13	0.75	1	89.5	84.5	77.5	68.5	57	42				
EV 1/14	0.75	1	96	90.5	83	73	60.5	44.5				
EV 1/15	0.75	1	102.5	96	88	78	64	47				
EV 1/17	1.1	1.5	118	111.5	103	91.5	76	56.5				
EV 1/19	1.1	1.5	131	123.5	114	101	84	62				
EV 1/22	1.1	1.5	150.5	141.5	130	115	95	69.5				
EV 1/23	1.5	2	160.5	152	140	124.5	104	77.5				
EV 1/25	1.5	2	174	164	151.5	134.5	112	83.5				
EV 1/27	1.5	2	187	176.5	162.5	144	120	88.5				
EV 1/30	1.5	2	206.5	194.5	179	158	131	96.5				
EV 1/32	2.2	3	224.5	213	197	175.5	147.5	110.5				
EV 1/34	2.2	3	238	225.5	208.5	185.5	155.5	116.5				
EV 1/37	2.2	3	258	244	225.5	200.5	167.5	125				
EV 3/2	0.37	0.5	15		15	14.5	13.5	12.5	11.5	10	8	6
EV 3/3	0.37	0.5	22.5		22	21	20	18.5	17	14.5	12	8.5
EV 3/4	0.37	0.5	30		28.5	27.5	26	24	21.5	18.5	15	10.5
EV 3/5	0.55	0.75	37.5		36	34.5	32.5	30	27	23.5	18.5	13
EV 3/6	0.55	0.75	44.5		42.5	40.5	38.5	35.5	32	27	21.5	15
EV 3/7	0.75	1	52.5		50.5	48.5	46	43	38.5	33	26.5	19
EV 3/8	0.75	1	59.5		57.5	55	52	48	43.5	37	29.5	21
EV 3/9	0.75	1	67		64	61.5	58	53.5	48	41	32.5	22.5
EV 3/10	1.1	1.5	75		72.5	70	66.5	61.5	55.5	48	38.5	27.5
EV 3/11	1.1	1.5	82.5		79.5	76.5	72.5	67	60.5	52	42	29.5
EV 3/12	1.1	1.5	89.5		86	83	78.5	72.5	65	56	45	31.5
EV 3/13	1.1	1.5	96.5		93	89	84.5	78	70	60	47.5	33.5
EV 3/14	1.5	2	105.5		102	98.5	93.5	86.5	78	67.5	54.5	39.5
EV 3/15	1.5	2	112.5		109	105	99.5	92.5	83	71.5	58	41.5
EV 3/16	1.5	2	120		115.5	111.5	105.5	98	88	76	61	43.5
EV 3/17	1.5	2	127		122.5	118	111.5	103.5	93	80	64	45.5
EV 3/18	2.2	3	136.5		132.5	128	121.5	113.5	102.5	89	72.5	53
EV 3/19	2.2	3	144		139.5	134.5	128	119	107.5	93.5	76	55.5
EV 3/21	2.2	3	158.5		153.5	148	140.5	130.5	118	102	83	60
EV 3/23	2.2	3	173		167.5	161.5	153	142	128	110.5	89.5	64.5
EV 3/25	2.2	3	187.5		181	174.5	165.5	153.5	138	119	96	68.5
EV 3/27	3	4	205.5		199.5	193	184	171.5	155	135	110.5	81
EV 3/29	3	4	220		213.5	206.5	196.5	183.5	166	144	117.5	86
EV 3/31	3	4	235		228	220.5	209.5	195	176.5	153	124.5	91
EV 3/33	3	4	249.5		242	234	222	206.5	187	162	131.5	95.5

* Hydraulic performance figures refer to individual pumps

EV 6-10 AT 50 HZ

Pump model	RATED POWER		Q = DELIVERY														
			l/min 0	42	50.0	58.3	67	75.0	83.3	90	100.0	116.7	133	150.0	166.7	183	233.3
			m^3/h 0	2.5	3	3.5	4	4.5	5	5.4	6	7	8	9	10	11	14
	[kW]	[HP]	H = TOTAL M.HEAD OF WATER COLUMN [m]														
EV 6/2	0.37	0.5	15	14	13.5	13	12.5	12	11.5	11	10	8					
EV 6/3	0.37	0.5	22.5	20.5	19.5	19	18	17	16	15.5	14	11					
EV 6/4	0.55	0.75	29.5	27	26	25	24	22.5	21.5	20.5	18.5	14.5					
EV 6/5	0.75	1	37.5	34.5	33.5	32	30.5	29	27.5	26	24	19					
EV 6/6	0.75	1	44.5	41	39.5	37.5	36	34	32.5	30.5	28	22					
EV 6/7	1.1	1.5	52.5	49	47	45	43	41	39	37	34	27					
EV 6/8	1.1	1.5	59.5	55	53.5	51	48.5	46.5	44	42	38.5	30.5					
EV 6/9	1.1	1.5	67	61.5	59	56.5	54	51.5	48.5	46	42.5	33.5					
EV 6/10	1.5	2	75	70	67.5	65	62	59	56	53.5	49	39					
EV 6/11	1.5	2	82.5	76.5	73.5	71	67.5	64.5	61	58	53.5	42.5					
EV 6/12	1.5	2	89.5	83	80	76.5	73	69.5	65.5	62.5	57.5	45.5					
EV 6/13	1.5	2	97	89	86	82	78.5	74.5	70.5	67	61.5	48.5					
EV 6/14	2.2	3	105.5	99	95.5	92	88	83.5	79.5	76	70	56					
EV 6/15	2.2	3	113	105.5	102	98	93.5	89	84.5	80.5	74	59.5					
EV 6/16	2.2	3	120.5	112	108	104	99	94.5	89.5	85.5	78.5	62.5					
EV 6/17	2.2	3	127.5	118.5	114.5	109.5	105	99.5	94.5	90	83	66					
EV 6/18	2.2	3	135	125	120.5	115.5	110.5	105	99.5	94.5	87	69					
EV 6/19	2.2	3	142	131.5	126.5	121.5	115.5	110	104	99	91	72					
EV 6/20	3	4	152	142.5	138	133	127	121	115	110	101.5	82					
EV 6/21	3	4	159	149.5	144.5	139	133	127	120.5	115	106	85.5					
EV 6/23	3	4	174	163	157.5	151.5	144.5	138	131	125	115	92.5					
EV 6/25	3	4	189	175.5	170	164	157.5	150.5	142.5	135.5	123.5	98.5					
EV 6/28	4	5.5	214	200.5	194.5	188	181	173.5	164.5	156.5	143	115.5					
EV 6/30	4	5.5	229	214	207.5	200.5	193	184.5	175.5	167	152.5	122.5					
EV 6/33	4	5.5	251.5	234.5	227	219.5	211	201.5	191	182	166	133.5					
EV 6/36	5.5	7.5	275	257.5	249.5	241.5	232.5	222.5	211.5	201.5	184	148.5					
EV 10/2	0.75	1	20								18.5	17.5	17	16	15	13.5	9
EV 10/3	1.1	1.5	30								27.5	26.5	25.5	24	22.5	20.5	13.5
EV 10/4	1.5	2	40.5								37	35.5	34	32.5	30.5	28	18
EV 10/5	1.5	2	50.5								45.5	43.5	41.5	39.5	37	33.5	21.5
EV 10/6	2.2	3	61								56	54	51.5	49	46	42	27.5
EV 10/7	2.2	3	70.5								64.5	62	59.5	56	52.5	48	31
EV 10/8	3	4	81.5								75.5	73	70	66.5	62.5	57.5	38
EV 10/9	3	4	91.5								84.5	81.5	78	74	69.5	64	42
EV 10/10	4	5.5	102.5								96	93	89	84.5	79.5	73.5	49
EV 10/11	4	5.5	113								105	101.5	97.5	92.5	87	80.5	53.5
EV 10/12	4	5.5	123								114	110	105.5	100.5	94	87	57.5
EV 10/13	4	5.5	133								123	118.5	113.5	108	101	93.5	61.5
EV 10/15	5.5	7.5	153.5								142.5	138	132	125.5	118	109	72
EV 10/17	5.5	7.5	173.5								160.5	155	148.5	141	132.5	122	80.5
EV 10/19	7.5	10	195								182	176	169	160.5	151	139.5	93
EV 10/21	7.5	10	215.5								200	193.5	185.5	176.5	166	153	101.5
EV 10/23	7.5	10	235.5								218.5	211	202	192	180.5	166.5	110
EV 10/24	11	15	248								234	227	218	208	196	182	122.5

* Hydraulic performance figures refer to individual pumps

EV 15-20 AT 50 HZ

Model pump	RATED POWER		Q = DELIVERY											
			l/min 0	133	167	200	233	266	300	333	367	400	433.5	466.5
			m^3/h 0	8	10	12	14	16	18	20	22	24	26	28
	[kW]	[HP]	H = TOTAL M.HEAD OF WATER COLUMN [m]											
EV 15/1	1.1	1.5	14.5	13	12.5	12	11.5	10.5	9.5	8.5	7	5.5		
EV 15/2	2.2	3	29	26	25	24	23	21.5	19.5	17	14	11		
EV 15/3	3	4	43.5	39	38	36.5	34.5	32.5	29.5	26	21.5	17		
EV 15/4	4	5.5	58	52.5	51	49	46.5	44	40.5	35.5	29.5	23.5		
EV 15/5	4	5.5	72.5	65.5	63.5	60.5	57.5	54.5	49.5	43	36	28.5		
EV 15/6	5.5	7.5	87.5	79.5	77	74	71	67	61.5	54	46	36.5		
EV 15/7	5.5	7.5	102	92	89	86	82	77.5	70.5	62	52.5	41.5		
EV 15/8	7.5	10	117	106.5	103	99.5	95	90	82.5	72.5	62	49		
EV 15/9	7.5	10	131.5	119	115.5	111	106	100.5	92	81	69	54.5		
EV 15/10	11	15	147.5	134.5	131	126.5	121	115	106	94	80.5	65		
EV 15/11	11	15	162	148	143.5	139	133	126.5	116.5	103	88.5	71		
EV 15/12	11	15	176.5	161	156.5	151	144.5	137.5	126.5	112	96	77		
EV 15/13	11	15	191	174.5	169	163.5	156.5	148.5	136.5	120.5	103	82.5		
EV 15/14	11	15	205.5	187.5	182	175.5	168	159	146	129	110.5	88		
EV 15/15	15	20	221	201	195.5	188.5	180.5	171.5	157.5	139.5	119.5	95.5		
EV 15/16	15	20	235.5	214	208	200.5	192	182.5	167.5	148	126.5	101.5		
EV 15/17	15	20	249.5	227.5	220.5	213	203.5	193	177.5	156.5	134	107		
EV 20/1	1.1	1.5	15.5		13.5	13	13	12.5	12	11	10	8.5	7.5	6
EV 20/2	2.2	3	31		27.5	27	26	25	24	22.5	20.5	18	15	12
EV 20/3	3	4	46.5		41.5	40.5	39.5	38	36.5	34.5	31	27.5	23	18.5
EV 20/4	4	5.5	62.5		56	55	53.5	51.5	49.5	46.5	42.5	37	31.5	25.5
EV 20/5	5.5	7.5	78		70	68.5	66.5	64.5	62	58	53	47	40	32.5
EV 20/6	7.5	10	94.5		86.5	84.5	82.5	80	77.5	73.5	67.5	60	52	42.5
EV 20/7	7.5	10	110		100.5	98	95.5	93	90	85	77.5	69	59.5	48.5
EV 20/8	11	15	126.5		117	114	112	109	106	100.5	92.5	82.5	72	59.5
EV 20/9	11	15	142.5		131	128	125.5	122	118.5	112.5	103.5	92.5	80.5	66.5
EV 20/10	11	15	158		145.5	142	139	135	131.5	124.5	114	102	88.5	73
EV 20/11	15	20	174		160	156.5	153	149	144.5	137	126	113	98	81
EV 20/12	15	20	189.5		174.5	170.5	167	162	157.5	149	137	122.5	106.5	87.5
EV 20/13	15	20	205		188.5	184	180	175	170	161	147.5	132	114.5	94
EV 20/14	15	20	220.5		202.5	198	193.5	188	182.5	172.5	158	141	122	100.5
EV 20/15	18.5	25	237		217.5	212.5	208	202	196	185.5	170.5	152	132	108.5
EV 20/16	18.5	25	252.5		231.5	226	221	215	208.5	197	181	161.5	140	115
EV 20/17	18.5	25	268		245.5	240	234.5	227.5	221	209	191.5	171	148	121.5

* Hydraulic performance figures refer to individual pumps

FIXED AND VARIABLE SPEED BOOSTER SETS

Booster sets consisting of several identical electric pumps coupled in parallel by manifolds, shut-off valves, check valves and fixed on a single base.

The electric pumps are controlled by an electric control panel and pressure switches for fixed-speed sets, or by one inverter for each electric pump for variable speed sets

APPLICATIONS

- Small domestic and industrial plants / Domestic water supply
- Water distribution and pressure increase
- Irrigation / Gardening / Rainwater collection
- Industrial plants / Washing units
- Cooling and refrigeration / Heating and conditioning / Air conditioning systems
- Various other installations

FEATURES

- Compact design
- Easy installation: all sets are assembled, wired and tested at the factory
- Suitable for pumping clear fluids

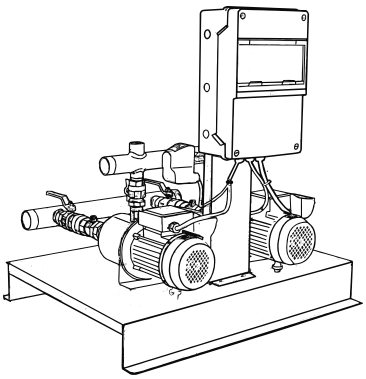
BOOSTER SET SPECIFICATIONS

- Flow: up to 84 m^3/h
- Head: up to 160 m
- Start up: direct or with inverter
- Supply voltage:
  - 1x230 V 50 Hz for single-phase sets
  - 3x400 V 50 Hz for three-phase sets
- Ambient temperature at nominal load: max 40°C
- Relative humidity: max 50% at 40 °C (without condensation)
- Max. altitude at nominal load: 1000 m above sea level
- Pumped liquid temperature: clean water between 5°C and +35°C

Booster sets
GP Series

GP SERIES

Fixed-speed booster sets with pressure switch control.



DESCRIPTION

The GP series booster sets consist of two or three identical electric pumps coupled in parallel via manifolds, shut-off valves, check valves and fixed on a single base.

The electric pumps are controlled by an electronic or electromechanical panel which automatically starts and stops the electric pumps according to the pressures set on the pressure switches.

SPECIFICATIONS

- Flow: up to 84 m^3/h
- Head:
  - up to 104 m for sets with EM and EH electric pumps
  - up to 160 m for sets with EV electric pumps
- Maximum operating pressure:
  - PN10 for sets with EM and EH electric pumps
  - PN16 for sets with EV electric pumps
- The sum of the inlet pressure and the maximum pressure developed by the pump at zero flow must always be less than the maximum operating pressure (P_N) allowed by the set
- Supply voltage:
  - 1x230 V 50 Hz for GPM sets
  - 3x400 V 50 Hz for GPT sets
- Ambient temperature at nominal load: min. 0 °C / max 40 °C
- Relative humidity: max 50% at 40 °C (without condensation)
- Max. altitude at nominal load: 1000 metres above sea level
- Pumped liquid temperature: clean water between +5 °C and +35°C

SET IDENTIFICATION CODE

GP | M | 02 | VM / EM3/03RG007T6 / ...

- GP: Fixed speed booster pump sets controlled by pressure switches
- M: Set power supply voltage: M (single-phase set), T (three-phase set)
- 02: Number of electropumps
- VM: Position of check valves: VM (delivery side), VA (suction side)
- EM3/03RG007T6: Electric pump model
- ...: Set speciality (“empty”: standard configuration)

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AVAILABLE VERSIONS

- Different materials for manifolds, check valves and shut-off valves

COMPOSITION

- EH, EM or EV series electric pumps
- Base and electrical panel door in powder-coated sheet metal
- Galvanised iron suction and delivery manifolds
- Electric pump counter-flanges (EV series pumps only)
- Suction and delivery shut-off valves for each electric pump
- Check valve in suction (VA) or delivery (VM) side of each electric pump
- Female cast iron caps for manifolds closure
- 1 pressure switch for each installed pump
- 1 pressure gauge
- Fitting for use with diaphragm tank
- 1 control panel
- Galvanised steel screws

MAIN PARTS

Part	Quantity		
	GP...02	GP...03	GP...04
Electric pumps	2	3	4
Pressure switch	2	3	4
Control panel	1	1	1
Check valve	2	3	4
Shut-off valve	4	6	8

PARTS IN CONTACT WITH LIQUID

Part	Booster set version			
	Standard	C304 *	A316 **	B316 ***
Electric pumps	See pump description	See pump description	See pump description	See pump description
Suction and delivery manifolds	Galvanized iron	304SS	316SS	316SS
Pressure switch	Nickel-plated brass	Nickel-plated brass	304SS	316SS
Pressure gauge	Brass	Brass	304SS	Not present
Check valve	Brass	Brass	316SS	316SS
Shut-off valve	Nickel-plated brass	Nickel-plated brass	316SS	316SS
Pump counter-flanges (EV pumps only)	Galvanized iron	Galvanized iron	316SS	316SS
Other components	Brass / Nickel-plated brass / Coated cast iron / Cast iron	Brass / Nickel-plated brass / Coated cast iron / Cast iron	316SS	316SS

* /C304: Set with suction and delivery manifolds in A304 steel. All other components that come into contact with pumped liquid as in the standard version.
** /A316: Set with suction and delivery manifolds in A316 steel. Other components that come into contact with pumped liquid in A316. Pressure gauge and pressure switches in A304. Set screws in galvanised iron.
*** /B316: Set with suction and delivery manifolds in A316 steel. Other components that come into contact with pumped liquid in A316. Set without pressure gauge. Set screws in galvanized iron.

POSITION OF CHECK VALVES

All the GP series sets can be supplied with check valves for the electric pumps on the delivery (VM) or suction side (VA).
Sets with check valves on the suction side are equipped with perforated nipples for connecting air feeders.

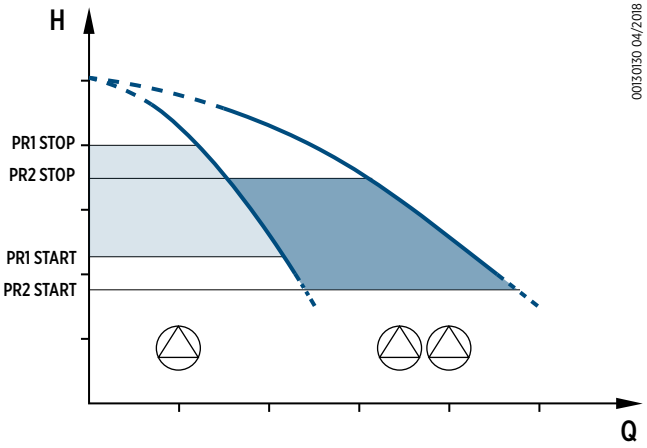
OPERATION PRINCIPLE

Each pump in the system is combined with a pressure switch, but this is not always connected due to cyclical exchange. The factory setting of the pressure switches foresees a sequenced start up of the electric pumps. The difference between the start and stop pressure is set equally for all the electric pumps in the system.

A water request by the system causes a drop in pressure. When this reaches the value of PR1 Start, the first electric pump is started.

If the water request increases, the pressure value drops below PR2 Start and the second electric pump is also started.

When the water request decreases, the pressure value increases. When this reaches the value of PR2 Stop, the second electric pump is stopped. As the water request decreases, the pressure value tends to rise until it reaches the value of PR1 Stop, and the first electric pump switches off.



QE2 SERIES ELECTRIC CONTROL PANEL

Electronic control panel for the control and protection of two single-phase or three-phase surface or submersible electric pumps.

SPECIFICATIONS

- Mains input:
  - 1 ~ 50/60 Hz 230 V ±10% (model QE2M)
  - 3 ~ 50/60 Hz 400 V ±10% (model QE2T)
- Protection degree: IP55
- Ambient temperature: from -5 °C to +40 °C
- Relative humidity: max 50% at 40 °C (without condensation)

COMPOSITION

- ABS casing
- General isolator with door lock
- Electronic control card with:
  - Low voltage inputs: Controlled by stop float switch (protection against dry running)
    Controlled by 2 float switches or pressure switches
    Controlled by float switch to max. alarm level
    2 klixon motors
  - Electric pump alternation circuit incorporated with 4" delay between start-up of the two electric pumps
  - Electric pump can be isolated in case of failure
  - Internal selector for alternating isolation of electric pumps
  - Motor operation buttons for Automatic-Off-Manual (temporary manual operation)
  - Indicator lights: 1 green = mains power
    2 green = motor running
    2 green = automatic mode
    1 red = water level alarm
    2 red = motor overload protection alarm
    2 red = klixon motors tripped
  - 2 protection reset buttons: Electronic protection for adjustable motor overload
    Protection trip time: 5"
  - Alarm output with 5 A 250 V exchange contacts (resistive load)
- Auxiliary protection fuses
- Motor protection fuses
- Single-phase version designed for inserting the capacitor (not included)
- Exits with wire trap cable glands

CONTROL PANEL IDENTIFICATION CODE

QE | 2 | T / 15A | 3x400 V | 50

- 50: Frequency
- 3x400 V: Rated current: 1 x 230 V / 3 x 400 V
- 15A: Maximum current value in the working range
- T: M (single-phase); T (three-phase)
- 2: Number of electropumps
- QE: QE: electronic panel

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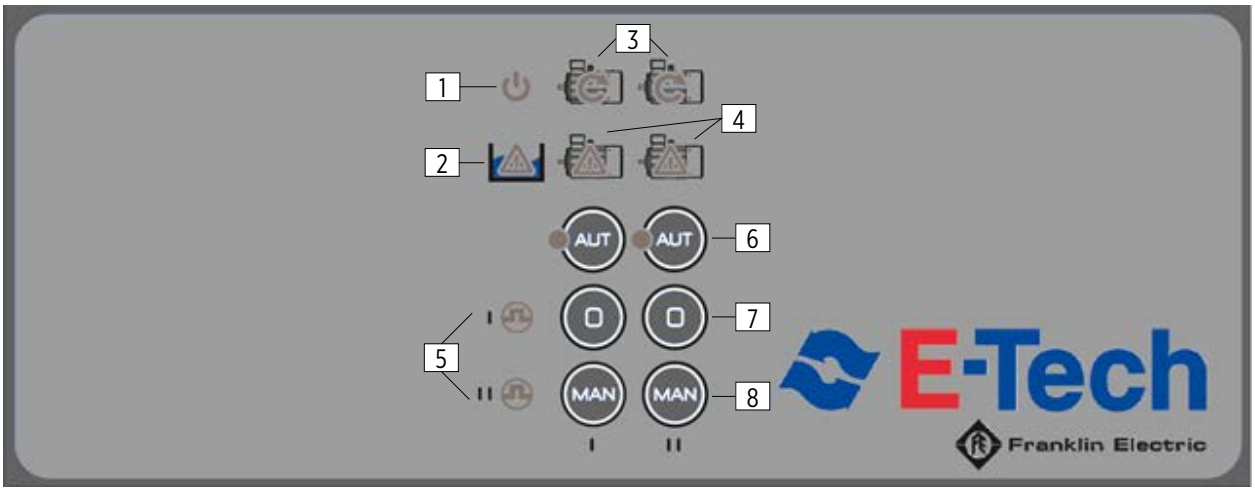
USER INTERFACE



1		GREEN LED indicates presence of voltage.
2		RED LED indicates MIN/MAX water level alarm.
3		GREEN LED indicates motor running.
4		RED LED. Simultaneous lighting indicates that the motor is in protected state.
5		RED LED indicates klixon tripped for respective motor due to coil overheating.
6	AUT	Automatic operation button Pressing it activates the automatic function, signalled by the respective GREEN LED lighting up. The panel is ready to receive commands from the inputs.
7		Automatic operation isolation button Pressing it disables the automatic function and resets all active protections and alarms if anomalies have been solved.
8	MAN	Manual operation button When held pressed, motor is operated without any protections. Motor stops when released.

ELECTRICAL FEATURES AND DIMENSIONS

Panel model	Power (kW)	Voltage [V]	Current range (A)	Dimensions [mm]	Weight [Kg]
QE2M/16A	0.37 ÷ 2.2	1x230	2 ÷ 16	340x240x170	4
QE2T/15A	0.55 ÷ 7.5	3x400	2 ÷ 15	340x240x170	6.5
QE2T/24A	7.5 ÷ 11	3x400	16 ÷ 24	340x240x170	6.5
QE2T/32A	11 ÷ 15	3x400	16 ÷ 32	340x240x170	6.5

QE3 SERIES ELECTRIC CONTROL PANEL

Electronic panel for the control and protection of three single-phase or three-phase surface or submersible electric pumps.

SPECIFICATIONS

- Mains input:
  - 1 ~ 50/60 Hz 230 V ±10% (model QE3M)
  - 3 ~ 50/60 Hz 400 V ±10% (model QE3T)
- Protection degree: IP55
- Ambient temperature: from -5 °C to +40 °C
- Relative humidity: max 50% at 40 °C (without condensation)

COMPOSITION

- Metal or ABS casing
- General isolator with door lock
- Electronic control card with:
  - Low voltage inputs: Three for operation commands via pressure switches
    One for minimum level protection
  - Built-in electric pump alternation circuit, with the possibility of isolation, with 1" delay between the start-up of the three electric pumps
  - Electric pump can be isolated in case of failure
  - Motor operation buttons for Automatic-Off-Manual (temporary manual operation)
  - Indicator lights: 1 green = mains power
    3 green = motors running
    3 green = automatic operation
    3 red = motor overload protection alarm
    1 red = alarm
  - Alarm outputs for minimum and maximum level
- Auxiliary protection fuses
- Motor protection fuses
- Single-phase version designed for inserting the capacitor (not included)
- Exits with wire trap cable glands

CONTROL PANEL IDENTIFICATION CODE

QE | 3 | T / 15A | 3x400 V | 50

- 50 — Frequency
- 3x400 V — Rated current: 1 x 230 V / 3 x 400 V
- 15A — Maximum current value in the working range
- T — M (single-phase); T (three-phase)
- 3 — Number of electropumps
- QE — QE: electronic panel

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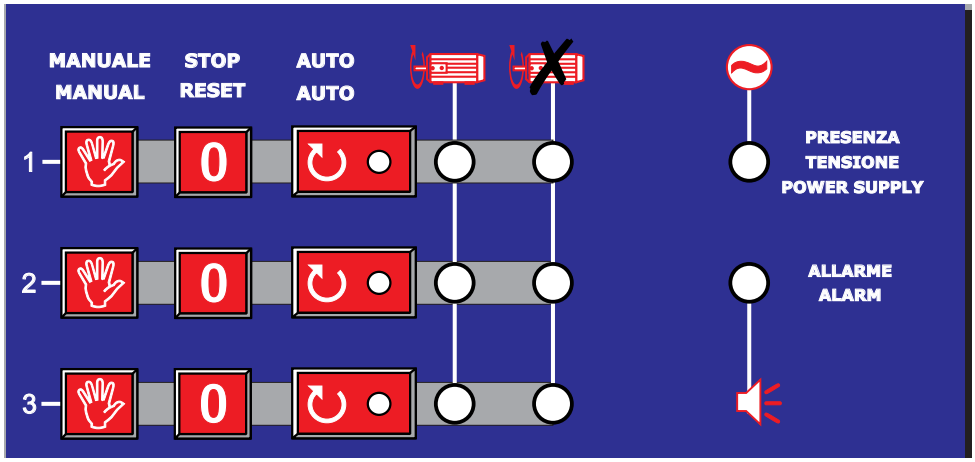
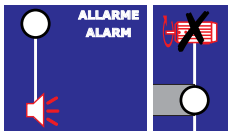
USER INTERFACE



1		Voltage present
2		Motor running
3		Motor in protected state
4		Automatic operation button
5		Stop/Reset button When pressed: • disengages automatic operation, if engaged • Resets all active protections • Resets the alarms if the anomalies have been solved.
6		Manual operation button When held pressed, motor is operated without any protections. Motor stops when released.

ELECTRICAL FEATURES AND DIMENSIONS

Panel model	Power (kW)	Voltage [V]	Current range (A)	Dimensions [mm]	Weight [Kg]
QE3M/16A	0.37 ÷ 2.2	1x230	2 ÷ 16	340x240x170	7
QE3T/15A	0.55 ÷ 7.5	3x400	2 ÷ 15	530x400x230	13

QM3 SERIES ELECTRIC CONTROL PANEL

Electromechanical panel with direct start for the control and protection of three single-phase or three-phase surface or submersible electric pumps

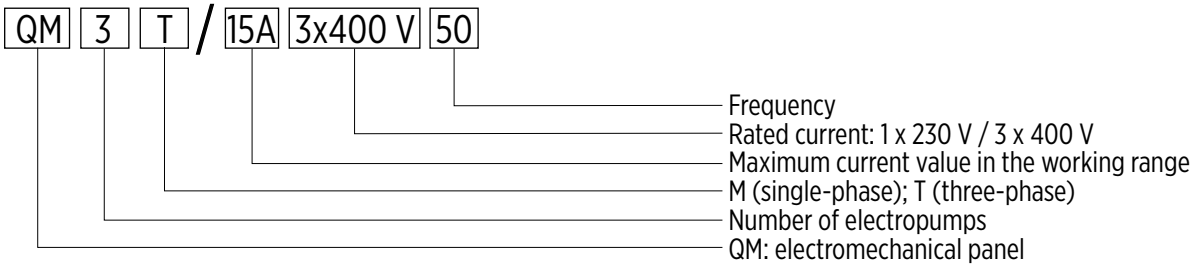
SPECIFICATIONS

- Mains input:
  - 1 ~ 50/60 Hz 230 V ±10% (model QM3M)
  - 3 ~ 50/60 Hz 400 V ±10% (model QM3T)
- Degree of protection IP55
- Ambient temperature: from -5 °C to +40 °C
- Relative humidity: max 50% at 40 °C (without condensation)

COMPOSITION

- Metal casing
- General isolator with door lock
- Lamps:
  - 1 blue = mains power
  - 1 red = thermal protection tripped
  - 3 green = motor running
- 3 AUTOMATIC-ISOLATION-MANUAL selectors
- 3 AC3 power contactors for motor start-up
- 3 thermal relays for overload protection
- Auxiliary protection fuses
- Motor protection fuses
- Protection against dry running via digital input (floating)
- Electric pump alternation

CONTROL PANEL IDENTIFICATION CODE



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USER INTERFACE

1		A blue lamp indicates presence of current
2		A red lamp indicates
3		A green lamps indicate motor running
4		Function selectors: • Automatic • Isolated • Manual

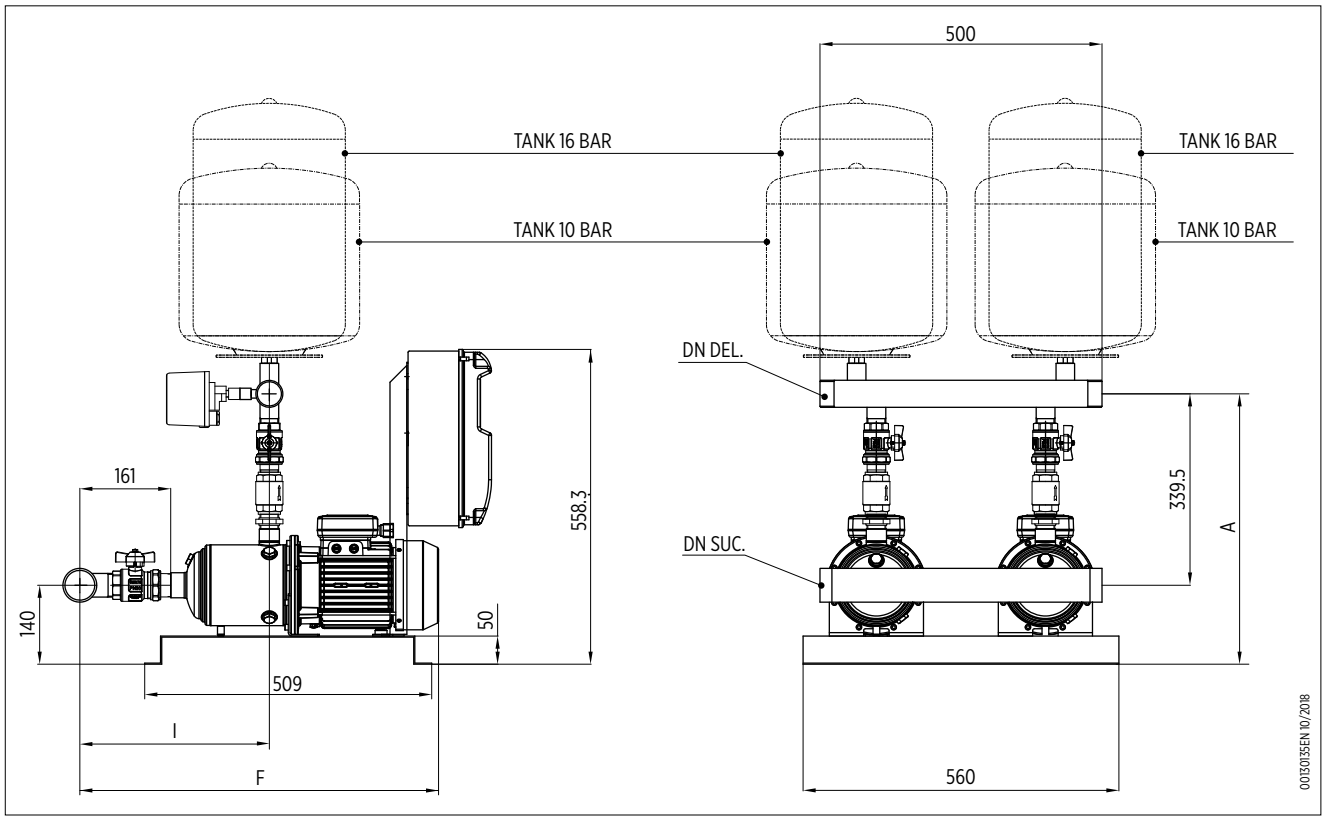
ELECTRICAL FEATURES AND DIMENSIONS

Panel model	Power (kW)	Voltage [V]	Current range (A)	Dimensions [mm]	Weight [Kg]
QM3M/4.5A	0.37	1x230	3 ÷ 4.5	540x400x230	7
QM3M/6.5A	0.55		4.5 ÷ 6.5	540x400x230	7
QM3M/9A	0.75		6 ÷ 9	540x400x230	7
QM3T/1.3A	0.37	3x400	0.9 ÷ 1.3	540x400x230	14
QM3T/2A	0.55		1.4 ÷ 2	540x400x230	14
QM3T/3.2A	0.75 ÷ 1.1		2 ÷ 3.2	540x400x230	14
QM3T/4.5A	1.5		3 ÷ 4.5	540x400x230	14
QM3T/6.8A	2.2		4.5 ÷ 6.8	540x400x230	14
QM3T/9A	3 ÷ 4		6 ÷ 9	540x400x230	14
QM3T/12A	5.5		9 ÷ 12	540x400x230	14
QM3T/16A	7.5		10 ÷ 16	540x400x230	15
QM3T/25A	11		15 ÷ 20	640x400x230	15
QM3T/31A	15		24 ÷ 31	640x400x230	15

Booster sets
GP Series
Data and dimensional drawings

GP...02/EH SERIES - DELIVERY CHECK VALVE (VM)

GP..02/EH 3-5



GPM02/EH3-5 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPM02/EH3/031004M5	QE2M/16A	479.5	522	264	G 2"	G 1" ½	54
GPM02/EH3/041005M5		479.5	546	288			54
GPM02/EH3/051007M5		479.5	570	312			58
GPM02/EH3/061009M5		479.5	594	336			61
GPM02/EH3/071011M5		479.5	618	360			68
GPM02/EH3/081013M5		479.5	684	384			68
GPM02/EH3/091015M5		479.5	708	408			72
GPM02/EH5/031005M5	QE2M/16A	479.5	522	264	G 2"	G 1" ½	62
GPM02/EH5/041008M5		479.5	546	288			62
GPM02/EH5/051011M5		479.5	570	312			67
GPM02/EH5/061013M5		479.5	636	336			70
GPM02/EH5/071015M5		479.5	660	360			75
GPM02/EH5/081015M5		479.5	728	384			86

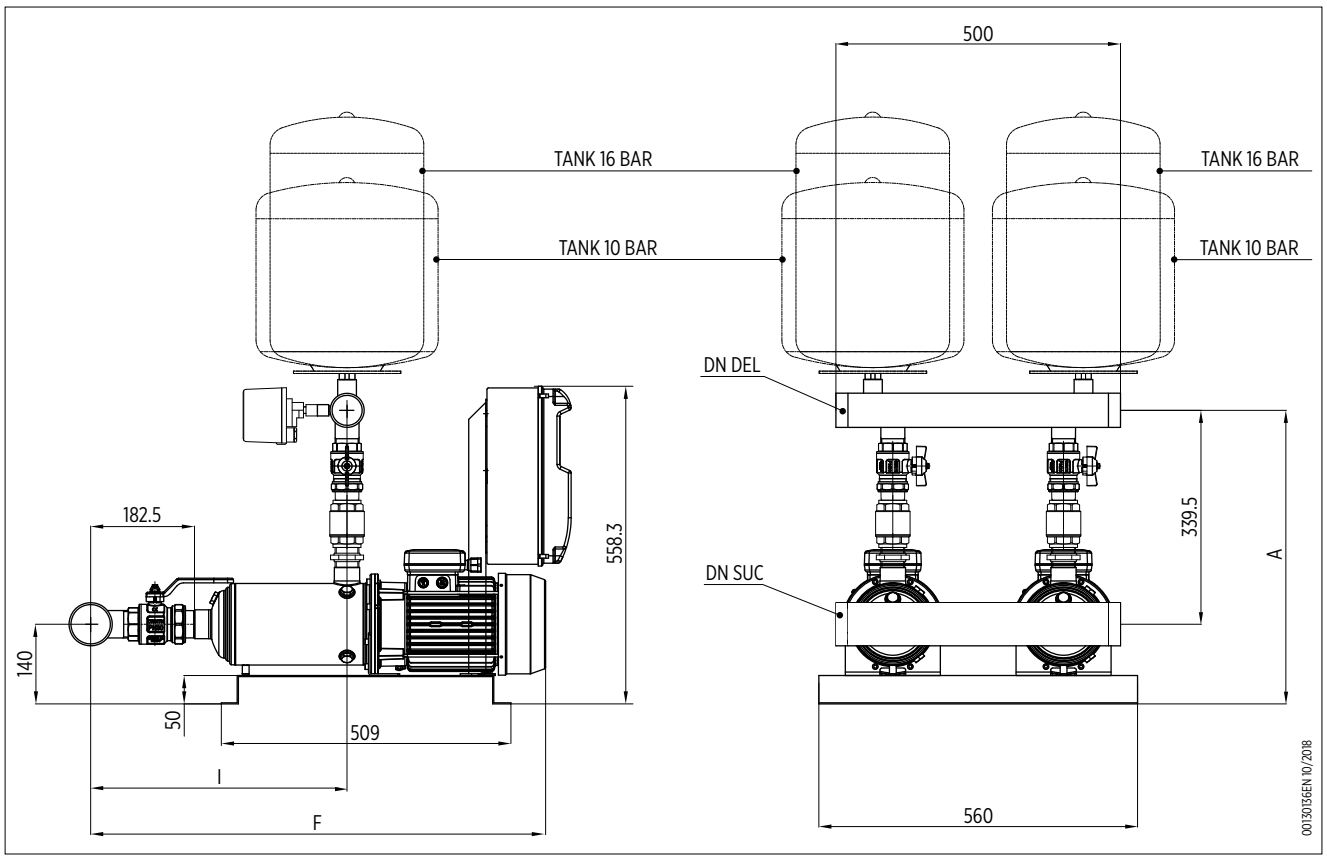
*Dimensional tolerance ± 30 mm

GPT02/EH3-5 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPT02/EH3/03I007T5	QE2T/15A	479.5	524	264	G 2"	G 1" ½	54
GPT02/EH3/04I007T5		479.5	548	288			54
GPT02/EH3/05I007T5		479.5	572	312			58
GPT02/EH3/06I011T5		479.5	596	336			61
GPT02/EH3/07I011T5		479.5	620	360			68
GPT02/EH3/08I015T5		479.5	681	384			69
GPT02/EH3/09I015T5		479.5	705	408			71
GPT02/EH5/03I007T5	QE2T/15A	479.5	524	264	G 2"	G 1" ½	62
GPT02/EH5/04I011T5		479.5	548	288			62
GPT02/EH5/05I011T5		479.5	572	312			66
GPT02/EH5/06I015T5		479.5	633	336			69
GPT02/EH5/07I015T5		479.5	657	360			74
GPT02/EH5/08I018T5		479.5	728	384			78
GPT02/EH5/09I020T5		479.5	752	408			78

*Dimensional tolerance ± 30 mm

GP...02/EH9



GPM02/EH9 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPM02/EH9/03I011M5	QE2M/16A	479.5	562.5	300.5	G 2" ½	G 2"	72
GPM02/EH9/04I015M5		479.5	634.5	330.5			73

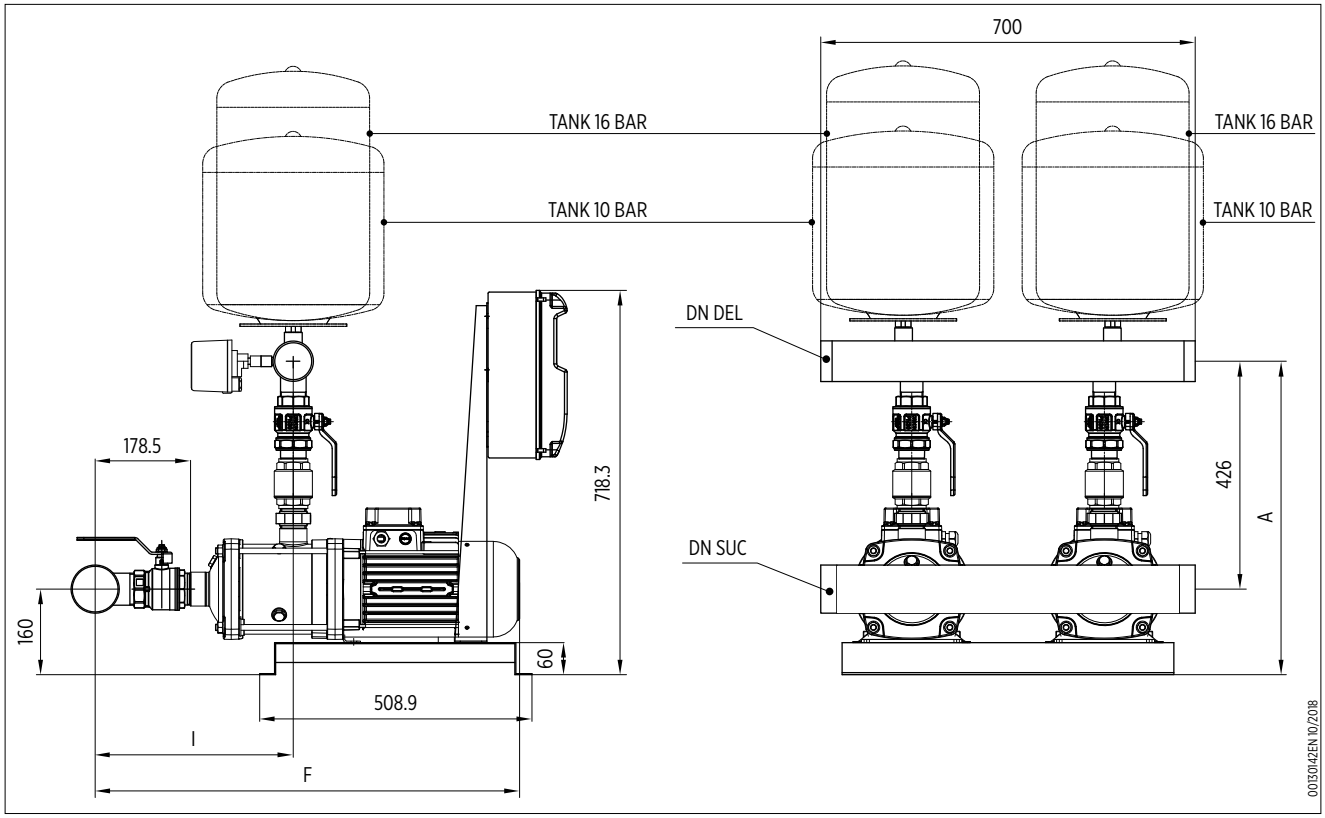
*Dimensional tolerance ± 30 mm

GPT02/EH9 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPT02/EH9/03I011T5	QE2T/15A	479.5	564.5	300.5	G 2" ½	G 2"	70
GPT02/EH9/04I015T5		479.5	631.5	330.5			73
GPT02/EH9/05I018T5		479.5	708.5	360.5			78
GPT02/EH9/06I022T5		479.5	738.5	390.5			81
GPT02/EH9/07I025T5		479.5	803.5	420.5			90
GPT02/EH9/08I030T5		479.5	833.5	450.5			95

*Dimensional tolerance ± 30 mm

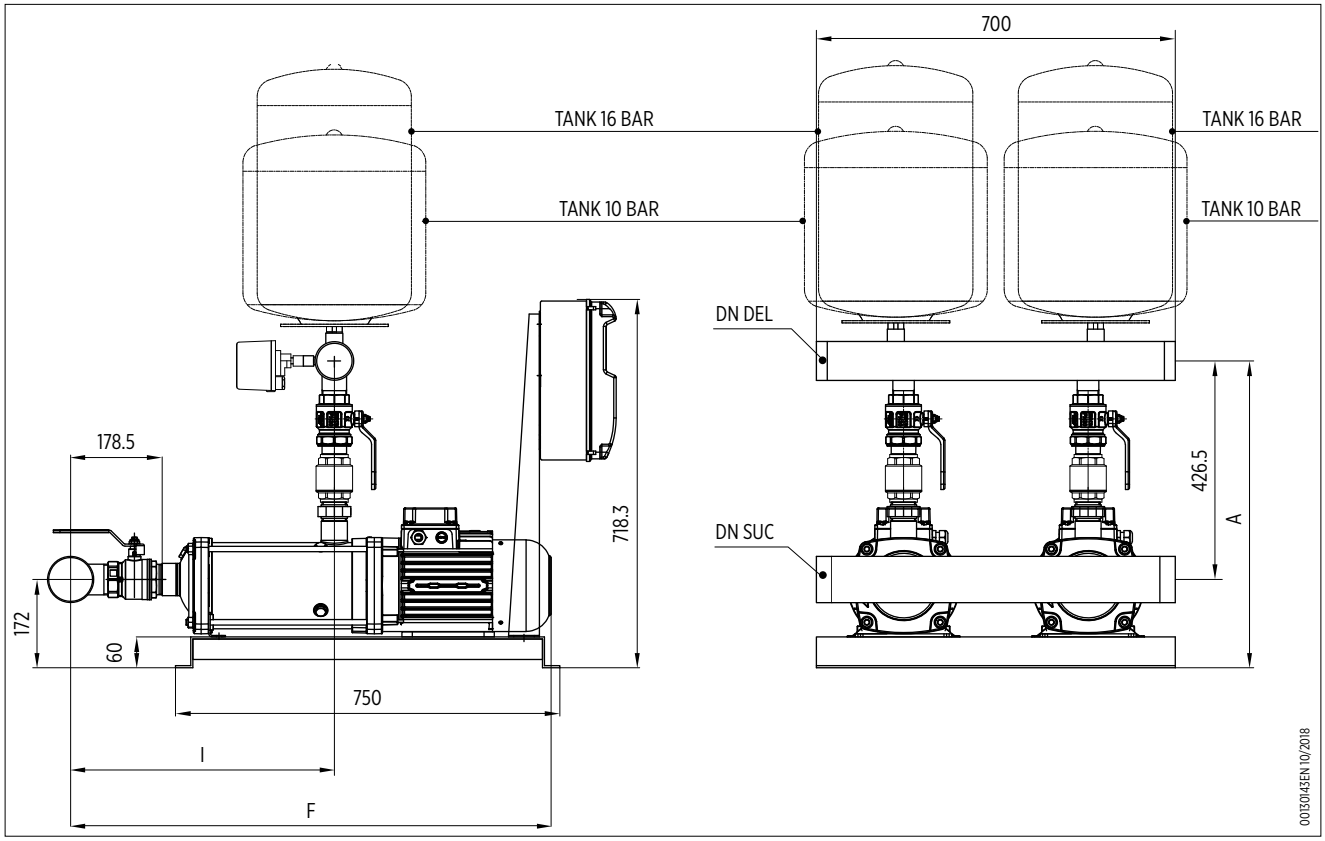
GPT02/EH 15-20 - CONFIG. UP TO 3 KW (THREE-PHASE VERSION)



Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPT02/EH15/02I015T5	QE2T/15A	586	663.5	322.5	G 3"	G 2" ½	80
GPT02/EH15/03I022T5		586	710.5	322.5			92
GPT02/EH15/04I030T5		586	793.5	370.5			96
GPT02/EH20/02I022T5	QE2T/15A	586	710.5	322.5	G 3"	G 2" ½	80
GPT02/EH20/03I030T5		586	745.5	322.5			92

*Dimensional tolerance ± 30 mm

GPT02/EH 15-20 - CONFIG. FROM 4 KW (THREE-PHASE VERSION)

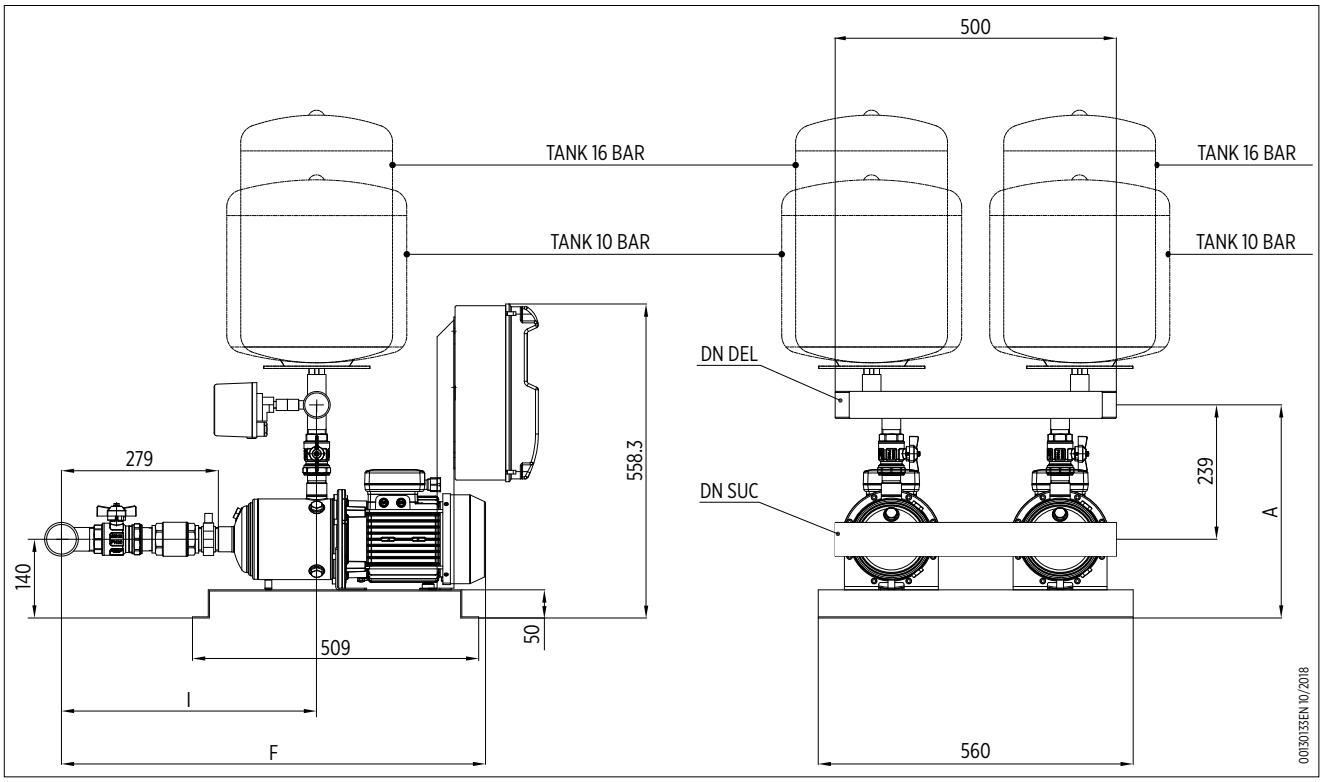


Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPT02/EH15/05I040T5	QE2T/15A	598.5	848.5	418.5	G 3"	G 2" ½	103
GPT02/EH15/06I055T5		598.5	910.5	466.5			120
GPT02/EH15/07I055T5		598.5	958.5	514.5			125
GPT02/EH20/04I040T5	QE2T/15A	598.5	800.5	370.5	G 3"	G 2" ½	96
GPT02/EH20/05I055T5		598.5	862.5	418.5			103

*Dimensional tolerance ± 30 mm

GP...02/EH SERIES - SUCTION CHECK VALVE (VA)

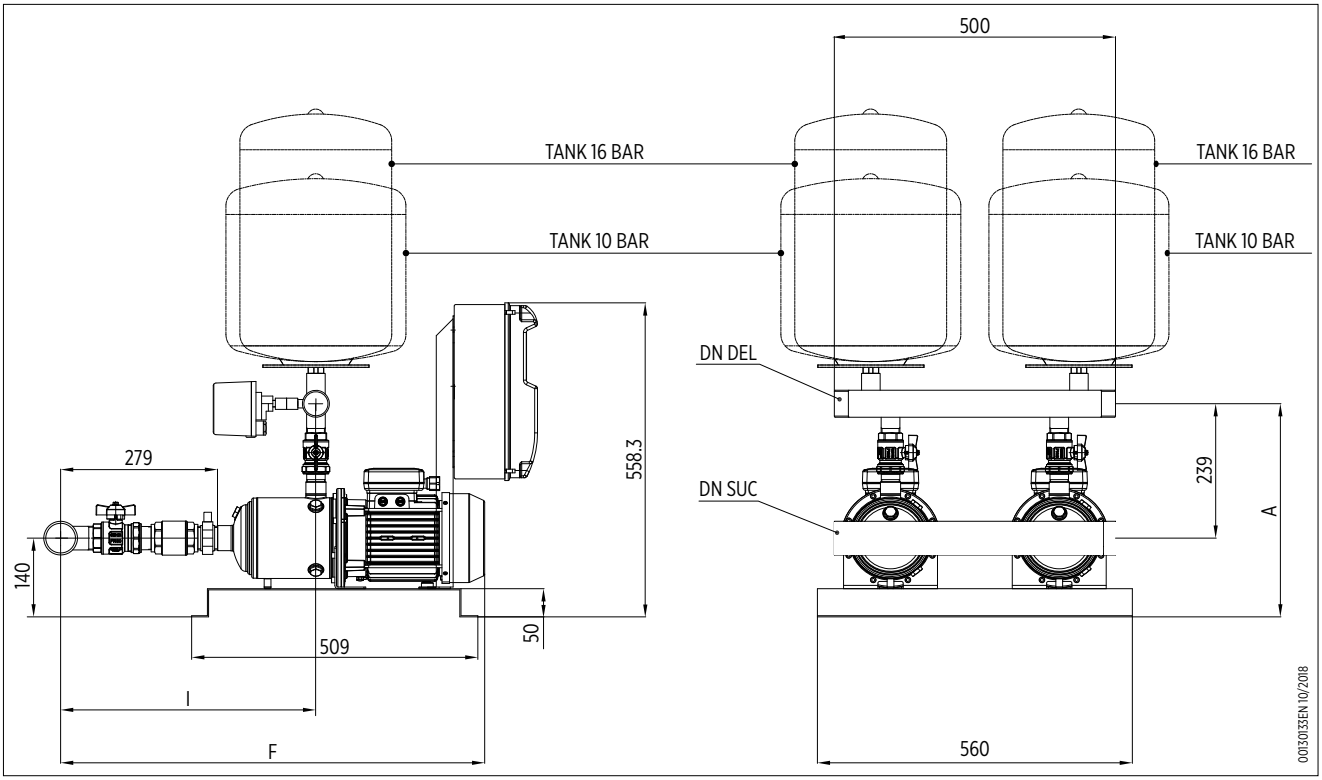
GPM02/EH 3-5 (SINGLE-PHASE VERSION)



Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPM02/EH3/03I004M5	QE2M/16A	479.5	640	382	G 2"	G 1" ½	54
GPM02/EH3/04I005M5		479.5	664	406			54
GPM02/EH3/05I007M5		479.5	688	430			58
GPM02/EH3/06I009M5		479.5	712	454			61
GPM02/EH3/07I011M5		479.5	736	478			68
GPM02/EH3/08I013M5		479.5	802	502			68
GPM02/EH3/09I015M5		479.5	826	526			72
GPM02/EH5/03I005M5	QE2M/16A	479.5	640	382	G 2"	G 1" ½	62
GPM02/EH5/04I008M5		479.5	664	406			62
GPM02/EH5/05I011M5		479.5	688	430			67
GPM02/EH5/06I013M5		479.5	754	454			70
GPM02/EH5/07I015M5		479.5	778	478			75
GPM02/EH5/08I015M5		479.5	846	502			86

*Dimensional tolerance ± 30 mm

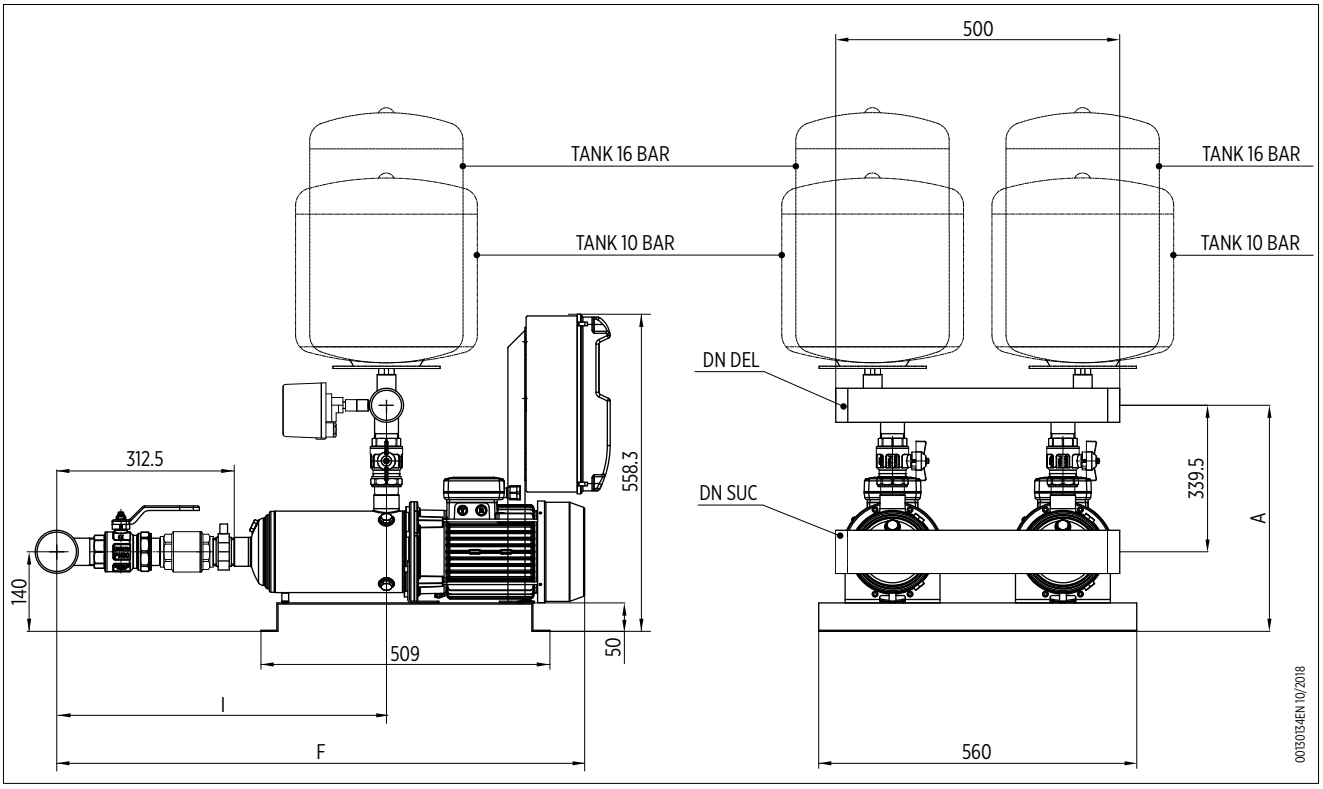
GPT02/EH3-5 (THREE-PHASE VERSION)



Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPT02/EH3/03I007T5	QE2T/15A	479.5	642	382	G 2"	G 1" ½	54
GPT02/EH3/04I007T5		479.5	666	406			54
GPT02/EH3/05I007T5		479.5	690	430			58
GPT02/EH3/06I011T5		479.5	714	454			61
GPT02/EH3/07I011T5		479.5	738	478			68
GPT02/EH3/08I015T5		479.5	799	502			69
GPT02/EH3/09I015T5		479.5	823	526			71
GPT02/EH5/03I007T5	QE2T/15A	479.5	642	382	G 2"	G 1" ½	62
GPT02/EH5/04I011T5		479.5	666	406			62
GPT02/EH5/05I011T5		479.5	690	430			66
GPT02/EH5/06I015T5		479.5	751	454			69
GPT02/EH5/07I015T5		479.5	775	478			74
GPT02/EH5/08I018T5		479.5	846	502			78
GPT02/EH5/09I020T5		479.5	870	526			78

*Dimensional tolerance ± 30 mm

GP...02/EH9



GPM02/EH9 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPM02/EH9/03I011M5	QE2M/16A	479.5	692.5	430.5	G 1" ½	G 2"	72
GPM02/EH9/04I015M5		479.5	764.5	460.5			73

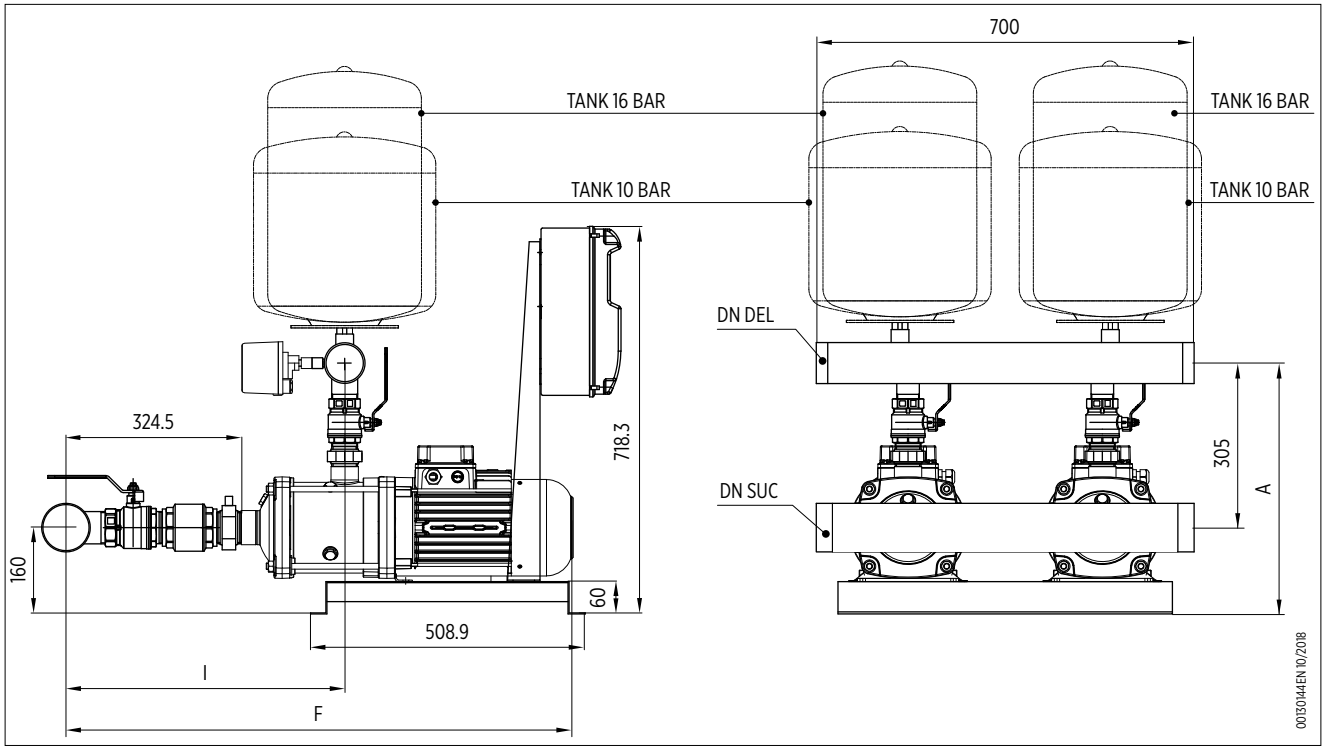
*Dimensional tolerance ± 30 mm

GPT02/EH9 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPT02/EH9/03I011T5	QE2T/15A	479.5	694.5	430.5	G 2" ½	G 2"	70
GPT02/EH9/04I015T5		479.5	761.5	460.5			73
GPT02/EH9/05I018T5		479.5	838.5	490.5			78
GPT02/EH9/06I022T5		479.5	868.5	520.5			81
GPT02/EH9/07I025T5		479.5	933.5	550.5			90
GPT02/EH9/08I030T5		479.5	963.5	580.5			95

*Dimensional tolerance ± 30 mm

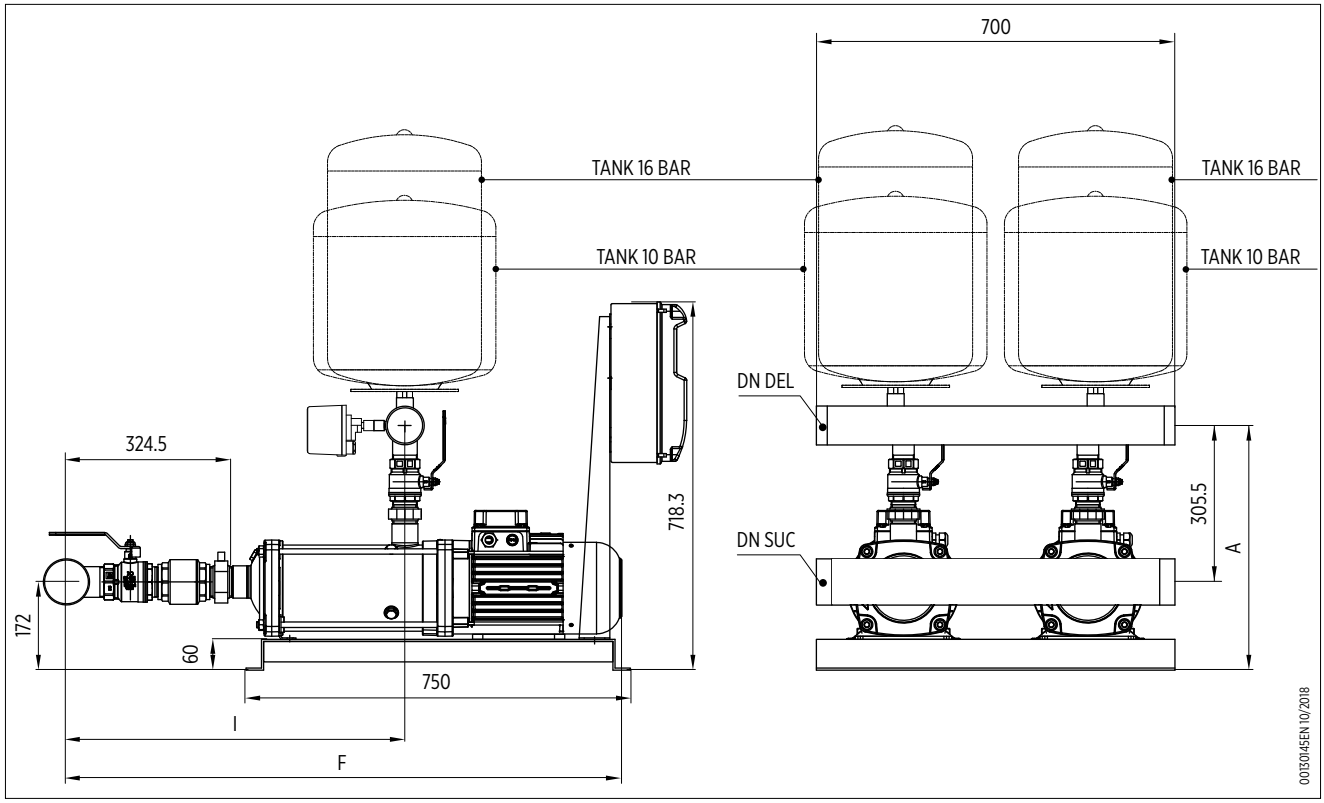
GPT02/EH 15-20 - CONFIG. UP TO 3 KW (THREE-PHASE VERSION)



Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPT02/EH15/02I015T5	QE2T/15A	465	797.5	468.5	G 3"	G 2" ½	80
GPT02/EH15/03I022T5		465	844.5	468.5			92
GPT02/EH15/04I030T5		465	927.5	516.5			96
GPT02/EH20/02I022T5	QE2T/15A	465	844.5	856.5	G 3"	G 2" ½	80
GPT02/EH20/03I030T5		465	879.5	891.5			92

*Dimensional tolerance ± 30 mm

GPT02/EH 15-20 - CONFIG. FROM 4 KW (THREE-PHASE VERSION)

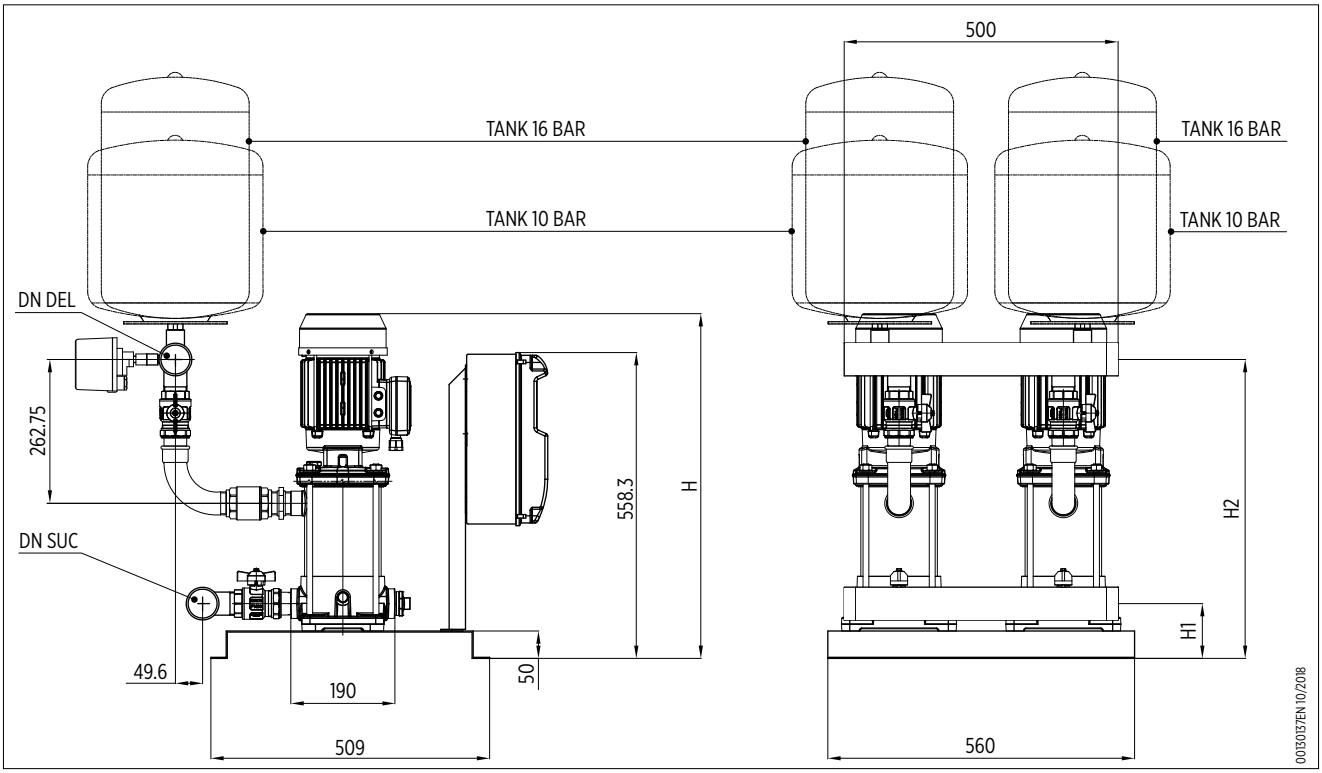


Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		A	F	I	DN ASP	DN MAN	
GPT02/EH15/05I040T5	QE2T/15A	477.5	982.5	564.5	G 3"	G 2" ½	103
GPT02/EH15/06I055T5		477.5	1044.5	612.5			120
GPT02/EH15/07I055T5		477.5	1092.5	660.5			125
GPT02/EH20/04I040T5	QE2T/15A	477.5	934.5	946.5	G 3"	G 2" ½	80
GPT02/EH20/05I055T5		477.5	996.5	1008.5			92

*Dimensional tolerance ± 30 mm

GP...02/EM SERIES - DELIVERY CHECK VALVE (VM)

GP...02/EM 3-5



GPM02/EM 3-5 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		H	H1	H2 (vers. R)	DN ASP	DN MAN	
GPM02/EM3/03RG004M5	QE2M/16A	515.5	100	473.75	G 2"	G 2"	69
GPM02/EM3/04RG005M5		539.5	100	497.75			73
GPM02/EM3/05RG007M5		563.5	100	521.75			76
GPM02/EM3/06RG009M5		587.5	100	545.75			83
GPM02/EM3/07RG011M5		611.5	100	569.75			83
GPM02/EM3/08RG013M5		677.5	100	593.75			87
GPM02/EM3/09RG015M5		701.5	100	617.75			77
GPM02/EM5/03RG005M5	QE2M/16A	515.5	100	473.75	G 2"	G 2"	77
GPM02/EM5/04RG009M5		539.5	100	497.75			82
GPM02/EM5/05RG011M5		563.5	100	521.75			85
GPM02/EM5/06RG013M5		629.5	100	545.75			90
GPM02/EM5/07RG015M5		653.5	100	569.75			101
GPM02/EM5/08RG018M5		716.5	100	593.75			110
GPM02/EM5/09RG022M5		740.5	100	617.75			115

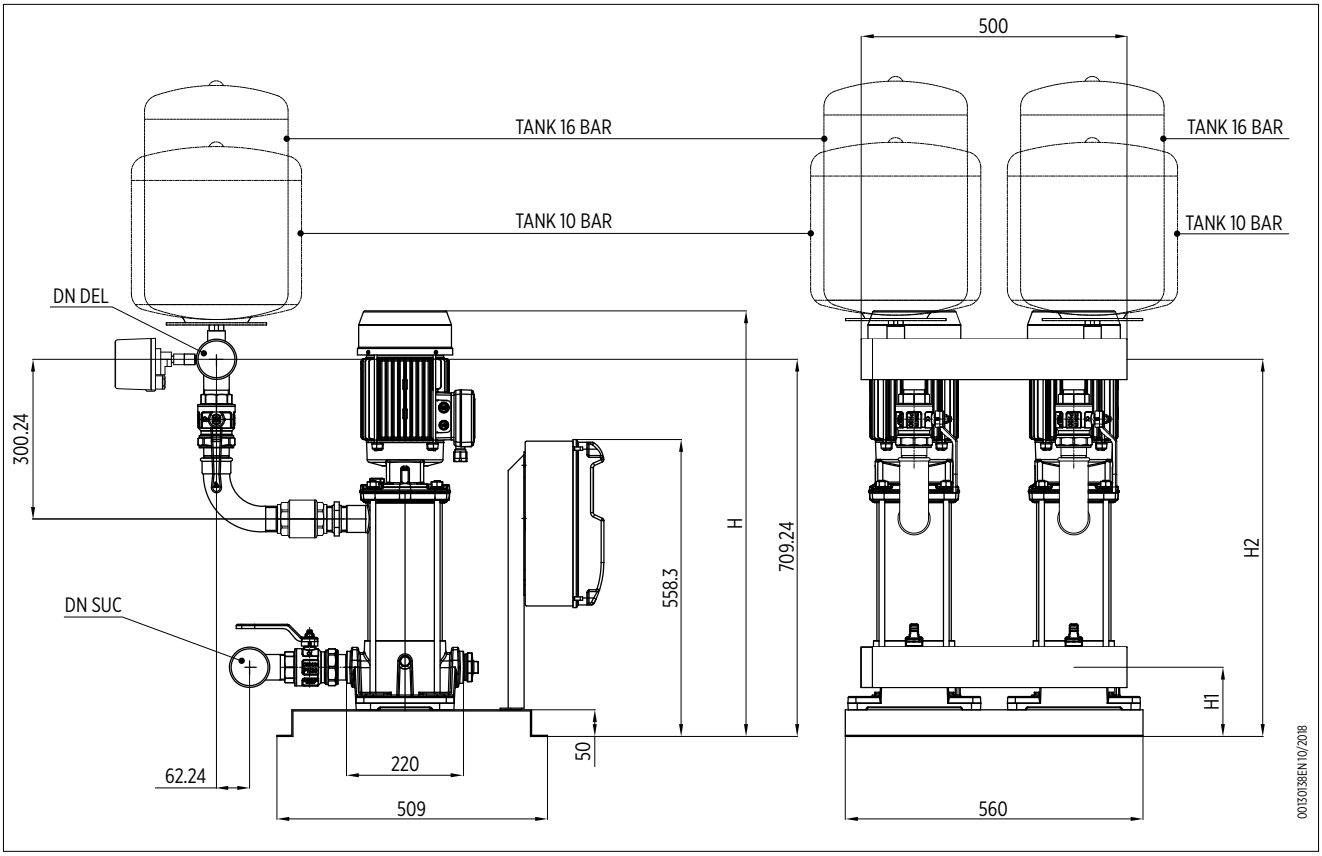
*Dimensional tolerance ± 30 mm

GPT02/EM 3-5 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		H	H1	H2 (vers. R)	DN ASP	DN MAN	
GPT02/EM3/03RG007T5	QE2T/15A	515.5	100	473.75	G 2"	G 2"	69
GPT02/EM3/04RG007T5		539.5	100	497.75			73
GPT02/EM3/05RG007T5		563.5	100	521.75			76
GPT02/EM3/06RG011T5		587.5	100	545.75			83
GPT02/EM3/07RG011T5		611.5	100	569.75			83
GPT02/EM3/08RG015T5		677.5	100	593.75			87
GPT02/EM3/09RG015T5		701.5	100	617.75			77
GPT02/EM5/03RG007T5	QE2T/15A	515.5	100	473.75	G 2"	G 2"	77
GPT02/EM5/04RG011T5		539.5	100	497.75			82
GPT02/EM5/05RG011T5		563.5	100	521.75			85
GPT02/EM5/06RG015T5		629.5	100	545.75			90
GPT02/EM5/07RG015T5		653.5	100	569.75			101
GPT02/EM5/08RG022T5		716.5	100	593.75			110
GPT02/EM5/09RG022T5		740.5	100	617.75			115

*Dimensional tolerance ± 30 mm

GP...02/EM 9



GPM02/EM 9 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		H	H1	H2 (vers. R)	DN ASP	DN MAN	
GPM02/EM9/03RG011M5	QE2M/16A	563.5	130	559.24	G 2" ½	G 2" ½	87
GPM02/EM9/04RG015M5		635.5	130	589.24			88
GPM02/EM9/05RG022M5		704.5	130	619.24			100
GPM02/EM9/06RG022M5		734.5	130	649.24			105
GPM02/EM9/07RG022M5		802.5	130	679.24			110

*Dimensional tolerance ± 30 mm

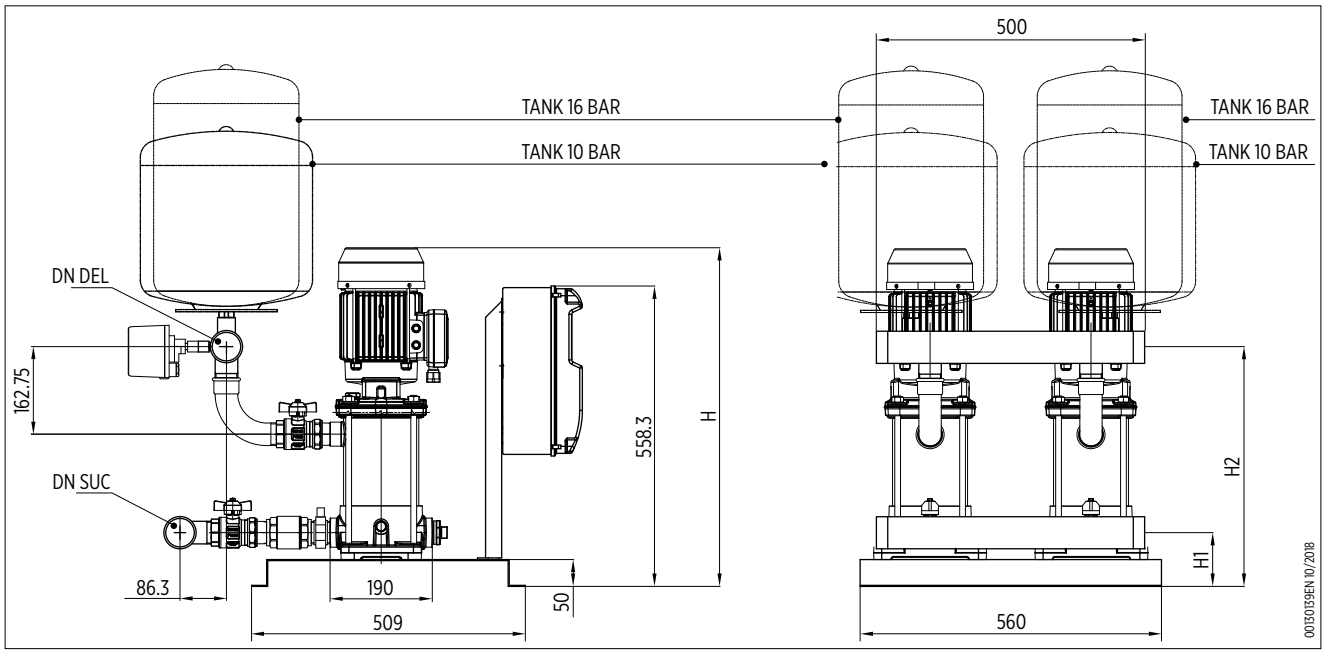
GPT02/EM 9 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		H	H1	H2 (vers. R)	DN ASP	DN MAN	
GPT02/EM9/03RG011T5	QE2T/15A	563.5	130	559.24	G 2" ½	G 2" ½	87
GPT02/EM9/04RG015T5		635.5	130	589.24			88
GPT02/EM9/05RG022T5		704.5	130	619.24			100
GPT02/EM9/06RG022T5		734.5	130	649.24			105
GPT02/EM9/07RG030T5		802.5	130	679.24			110
GPT02/EM9/08RG030T5		832.5	130	709.24			120

*Dimensional tolerance ± 30 mm

GP...02/EM SERIES - SUCTION CHECK VALVE (VA)

GP...02/EM 3-5

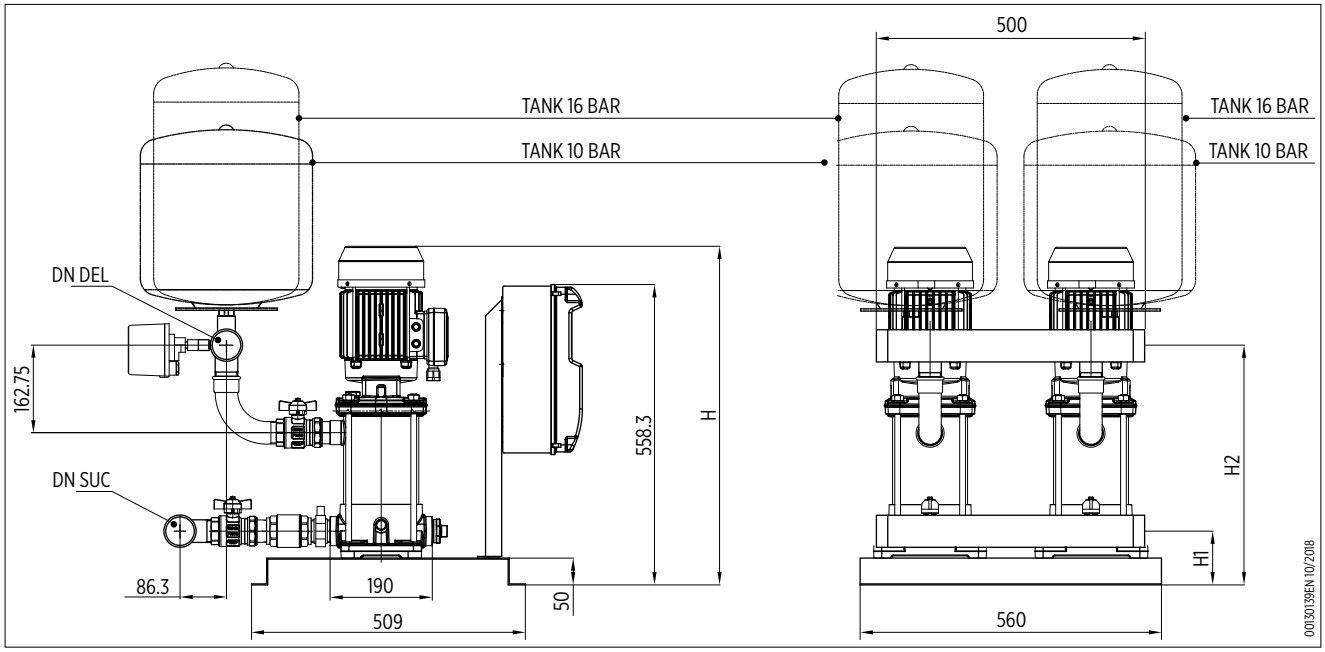


GPM02/EM 3-5 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		H	H1	H2 (vers. R)	DN ASP	DN MAN	
GPM02/EM3/03RG004M5	QE2M/16A	515.5	100	373.75	G 2"	G 2"	69
GPM02/EM3/04RG005M5		539.5	100	397.75			73
GPM02/EM3/05RG007M5		563.5	100	421.75			76
GPM02/EM3/06RG009M5		587.5	100	445.75			83
GPM02/EM3/07RG011M5		611.5	100	469.75			83
GPM02/EM3/08RG013M5		677.5	100	493.75			87
GPM02/EM3/09RG015M5		701.5	100	517.75			77
GPM02/EM5/03RG005M5	QE2M/16A	515.5	100	373.75	G 2"	G 2"	77
GPM02/EM5/04RG009M5		539.5	100	397.75			82
GPM02/EM5/05RG011M5		563.5	100	421.75			85
GPM02/EM5/06RG013M5		629.5	100	445.75			90
GPM02/EM5/07RG015M5		653.5	100	469.75			101
GPM02/EM5/08RG018M5		716.5	100	493.75			110
GPM02/EM5/09RG022M5		740.5	100	517.75			115

*Dimensional tolerance ± 30 mm

GP...02/EM 3-5

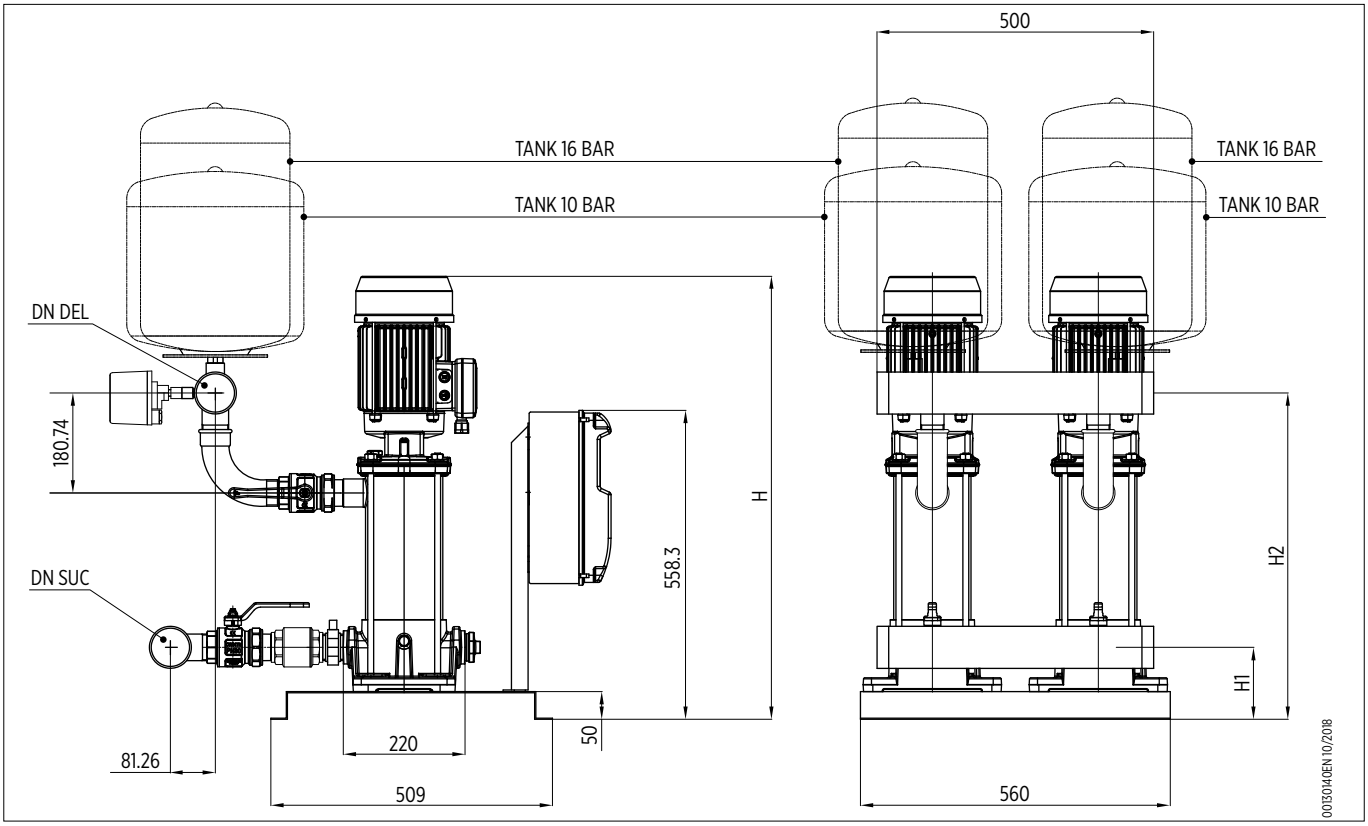


GPT02/EM 3-5 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		H	H1	H2 (vers. R)	DN ASP	DN MAN	
GPT02/EM3/03RG007T5	QE2T/15A	515.5	100	373.75	G 2"	G 2"	69
GPT02/EM3/04RG007T5		539.5	100	397.75			73
GPT02/EM3/05RG007T5		563.5	100	421.75			76
GPT02/EM3/06RG011T5		587.5	100	445.75			83
GPT02/EM3/07RG011T5		611.5	100	469.75			83
GPT02/EM3/08RG015T5		677.5	100	493.75			87
GPT02/EM3/09RG015T5		701.5	100	517.75			77
GPT02/EM5/03RG007T5	QE2T/15A	515.5	100	373.75	G 2"	G 2"	77
GPT02/EM5/04RG011T5		539.5	100	397.75			82
GPT02/EM5/05RG011T5		563.5	100	421.75			85
GPT02/EM5/06RG015T5		629.5	100	445.75			90
GPT02/EM5/07RG015T5		653.5	100	469.75			101
GPT02/EM5/08RG022T5		716.5	100	493.75			110
GPT02/EM5/09RG022T5		740.5	100	517.75			115

*Dimensional tolerance ± 30 mm

GP...02/EM 9



GPM02/EM 9 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		H	H1	H2 (vers. R)	DN ASP	DN MAN	
GPM02/EM9/03RG011M5	QE2M/16A	563.5	130	439.74	G 2" ½	G 2" ½	87
GPM02/EM9/04RG015M5		635.5	130	469.74			88
GPM02/EM9/05RG022M5		734.5	130	499.74			100
GPM02/EM9/06RG022M5		802.5	130	529.74			105
GPM02/EM9/07RG022M5		832.5	130	559.74			110

*Dimensional tolerance ± 30 mm

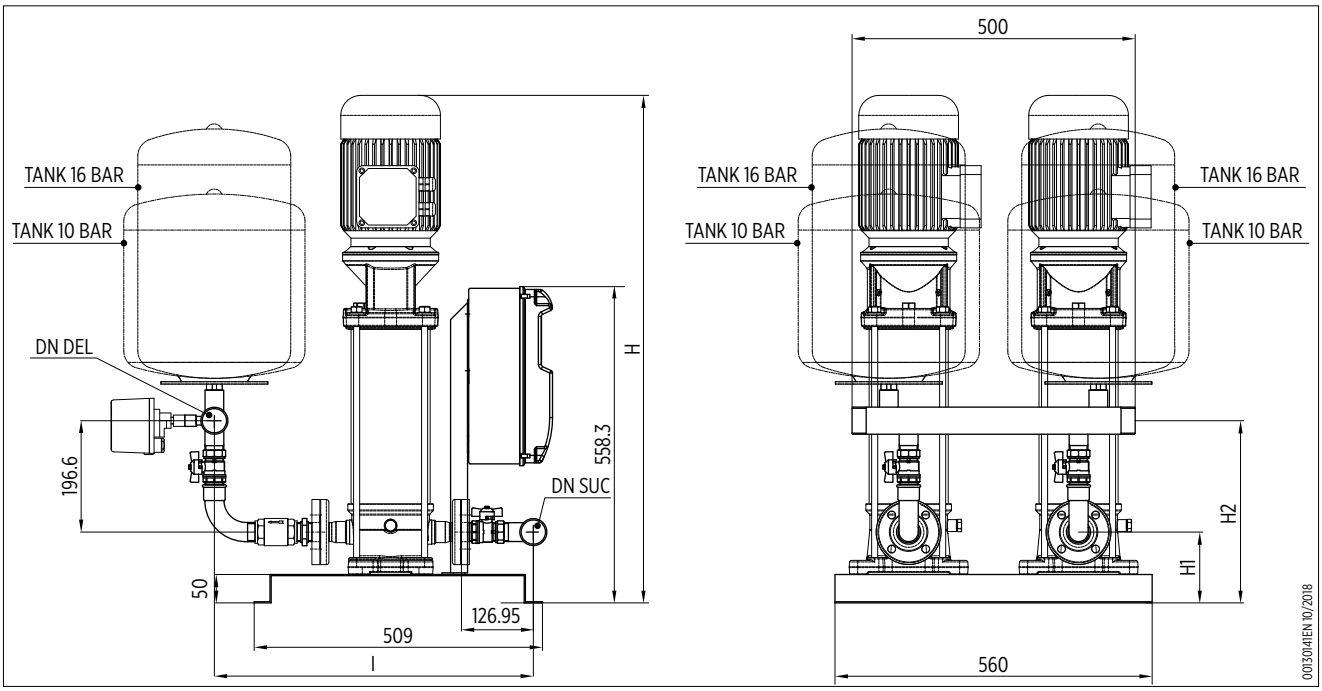
GPT02/EM 9 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]			Manifolds		Weight [Kg]
		H	H1	H2 (vers. R)	DN ASP	DN MAN	
GPT02/EM9/03RG011T5	QE2T/15A	563.5	130	439.74	G 2" ½	G 2" ½	87
GPT02/EM9/04RG015T5		635.5	130	469.74			88
GPT02/EM9/05RG022T5		704.5	130	499.74			100
GPT02/EM9/06RG022T5		734.5	130	529.74			105
GPT02/EM9/07RG030T5		802.5	130	559.74			110
GPT02/EM9/08RG030T5		832.5	130	589.74			120

*Dimensional tolerance ± 30 mm

GP...02/EV SERIES - DELIVERY CHECK VALVE (VM)

GP...02/EV 3



GPM02/EV 3 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPM02/EV3/04FI003M	QE2M/16A	624	125	321.6	563.12	G 2"	G 2"	74
GPM02/EV3/05FI005M		647	125	321.6	563.12			78
GPM02/EV3/06FI005M		669	125	321.6	563.12			88
GPM02/EV3/07FI007M		708	125	321.6	563.12			90
GPM02/EV3/08FI007M		730	125	321.6	563.12			92
GPM02/EV3/09FI007M		753	125	321.6	563.12			93
GPM02/EV3/10FI011M		775	125	321.6	563.12			97
GPM02/EV3/11FI011M		798	125	321.6	563.12			100
GPM02/EV3/12FI011M		820	125	321.6	563.12			105
GPM02/EV3/13FI011M		843	125	321.6	563.12			108

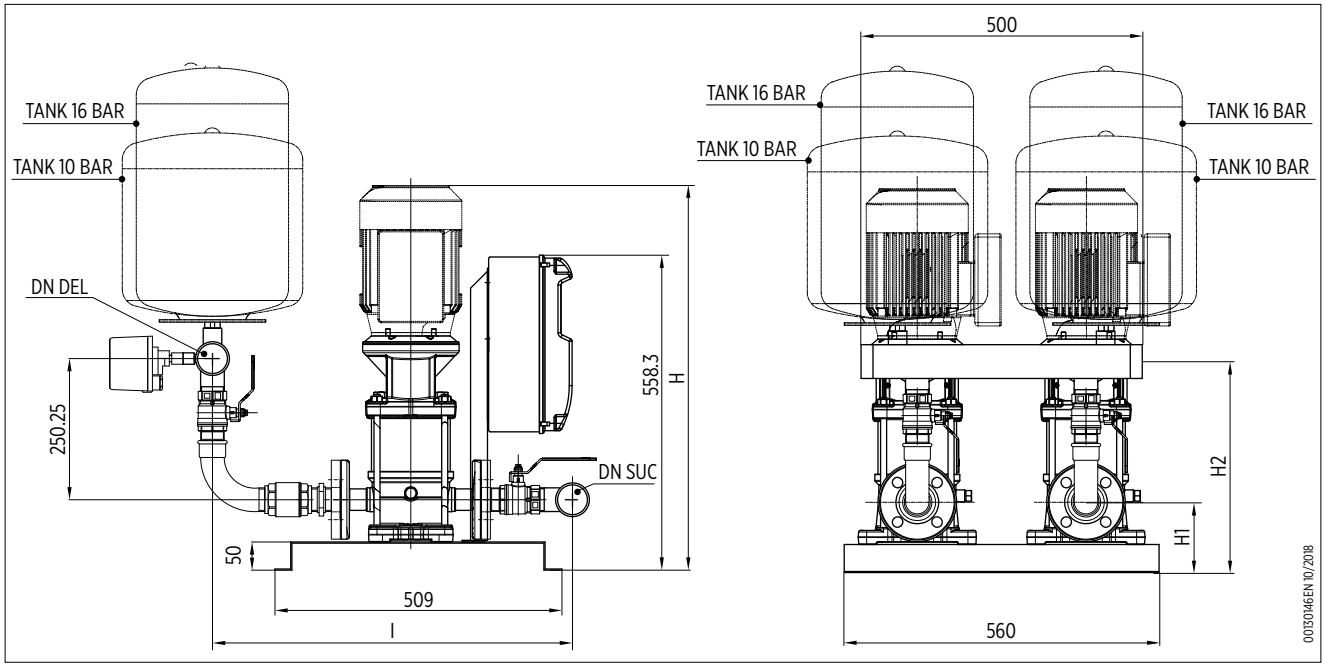
*Dimensional tolerance ± 30 mm

GPT02/EV 3 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT02/EV3/04FI003T	QE2T/15A	624	125	321.6	563.12	G 2"	G 2"	74
GPT02/EV3/05FI005T		647	125	321.6	563.12			78
GPT02/EV3/06FI005T		669	125	321.6	563.12			88
GPT02/EV3/07FI007T		708	125	321.6	563.12			90
GPT02/EV3/08FI007T		730	125	321.6	563.12			92
GPT02/EV3/09FI007T		753	125	321.6	563.12			93
GPT02/EV3/10FI011T		775	125	321.6	563.12			97
GPT02/EV3/11FI011T		798	125	321.6	563.12			100
GPT02/EV3/12FI011T		820	125	321.6	563.12			105
GPT02/EV3/13FI011T		843	125	321.6	563.12			108
GPT02/EV3/14FI015T		910	125	321.6	563.12			109
GPT02/EV3/15FI015T		933	125	321.6	563.12			110
GPT02/EV3/16FI015T		955	125	321.6	563.12			111
GPT02/EV3/17FI015T		978	125	321.6	563.12			112
GPT02/EV3/18FI022T		1000	125	321.6	563.12			117
GPT02/EV3/19FI022T		1023	125	321.6	563.12			118
GPT02/EV3/21FI022T		1068	125	321.6	563.12			119

*Dimensional tolerance ± 30 mm

GP...02/EV 6



GPM02/EV 6 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPM02/EV6/05FI007M	QE2M/16A	680	125	375.25	638.15	G 2"	G 2"	105
GPM02/EV6/06FI007M		706	125	375.25	638.15			110
GPM02/EV6/07FI011M		732	125	375.25	638.15			115
GPM02/EV6/08FI011M		758	125	375.25	638.15			120
GPM02/EV6/09FI011M		784	125	375.25	638.15			122
GPM02/EV6/10FI015M		855	125	375.25	638.15			125
GPM02/EV6/11FI015M		881	125	375.25	638.15			127
GPM02/EV6/12FI015M		907	125	375.25	638.15			130
GPM02/EV6/13FI015M		933	125	375.25	638.15			135

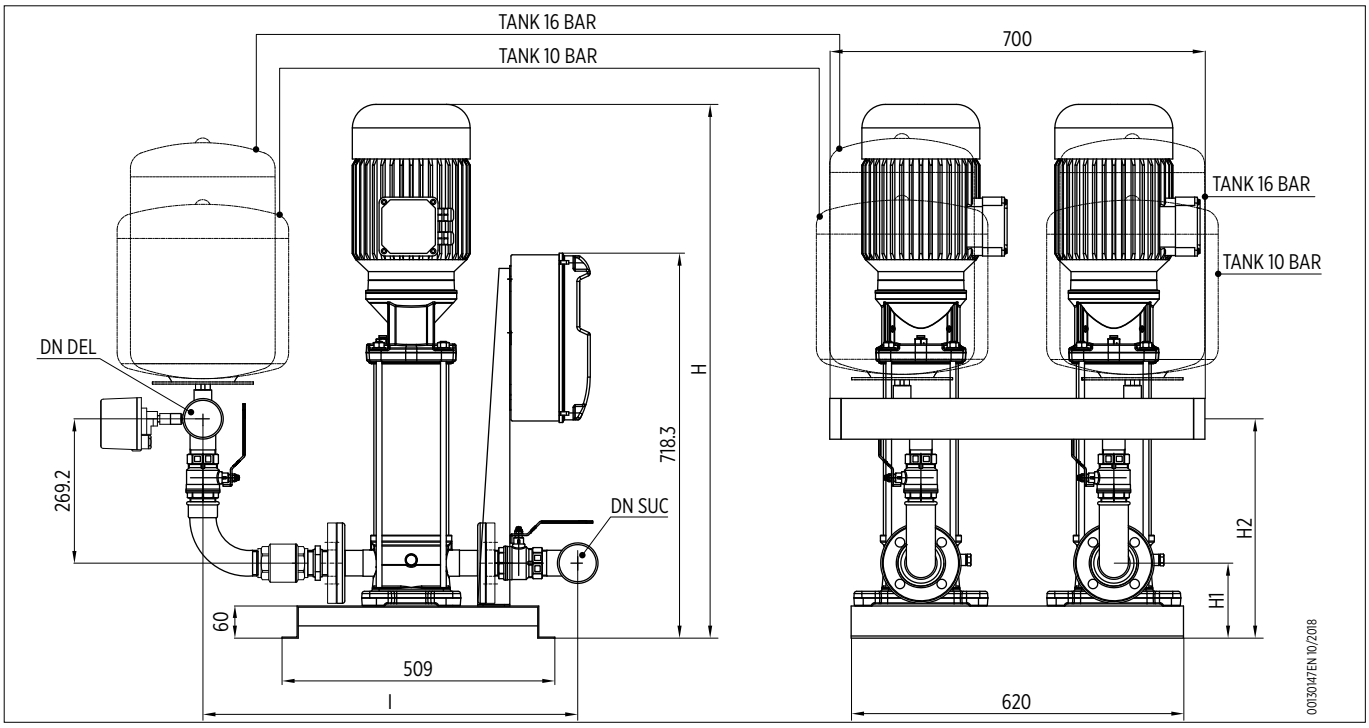
*Dimensional tolerance ± 30 mm

GPM02/EV 6 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT02/EV6/05FI007T	QE2T/15A	680	125	375.25	638.15	G 2"	G 2"	105
GPT02/EV6/06FI007T		706	125	375.25	638.15			110
GPT02/EV6/07FI011T		732	125	375.25	638.15			115
GPT02/EV6/08FI011T		758	125	375.25	638.15			120
GPT02/EV6/09FI011T		784	125	375.25	638.15			122
GPT02/EV6/10FI015T		855	125	375.25	638.15			125
GPT02/EV6/11FI015T		881	125	375.25	638.15			127
GPT02/EV6/12FI015T		907	125	375.25	638.15			130
GPT02/EV6/13FI015T		933	125	375.25	638.15			135
GPT02/EV6/14FI022T		959	125	375.25	638.15			135
GPT02/EV6/15FI022T		985	125	375.25	638.15			141
GPT02/EV6/16FI022T		1011	125	375.25	638.15			142
GPT02/EV6/17FI022T		1037	125	375.25	638.15			142
GPT02/EV6/18FI022T		1063	125	375.25	638.15			143
GPT02/EV6/19FI022T		1089	125	375.25	638.15			144

*Dimensional tolerance ± 30 mm

GP...02/EV 10



GPM02/EV 10 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPM02/EV10/03FI011M	QE2M/16A	663	140	409	700	G 2" ½	G 2" ½	120
GPM02/EV10/04FI015M		738	140	409	700			125
GPM02/EV10/05FI015M		768	140	409	700			135
GPM02/EV10/06FI022M		798	140	409	700			140
GPM02/EV10/07FI022M		828	140	409	700			145

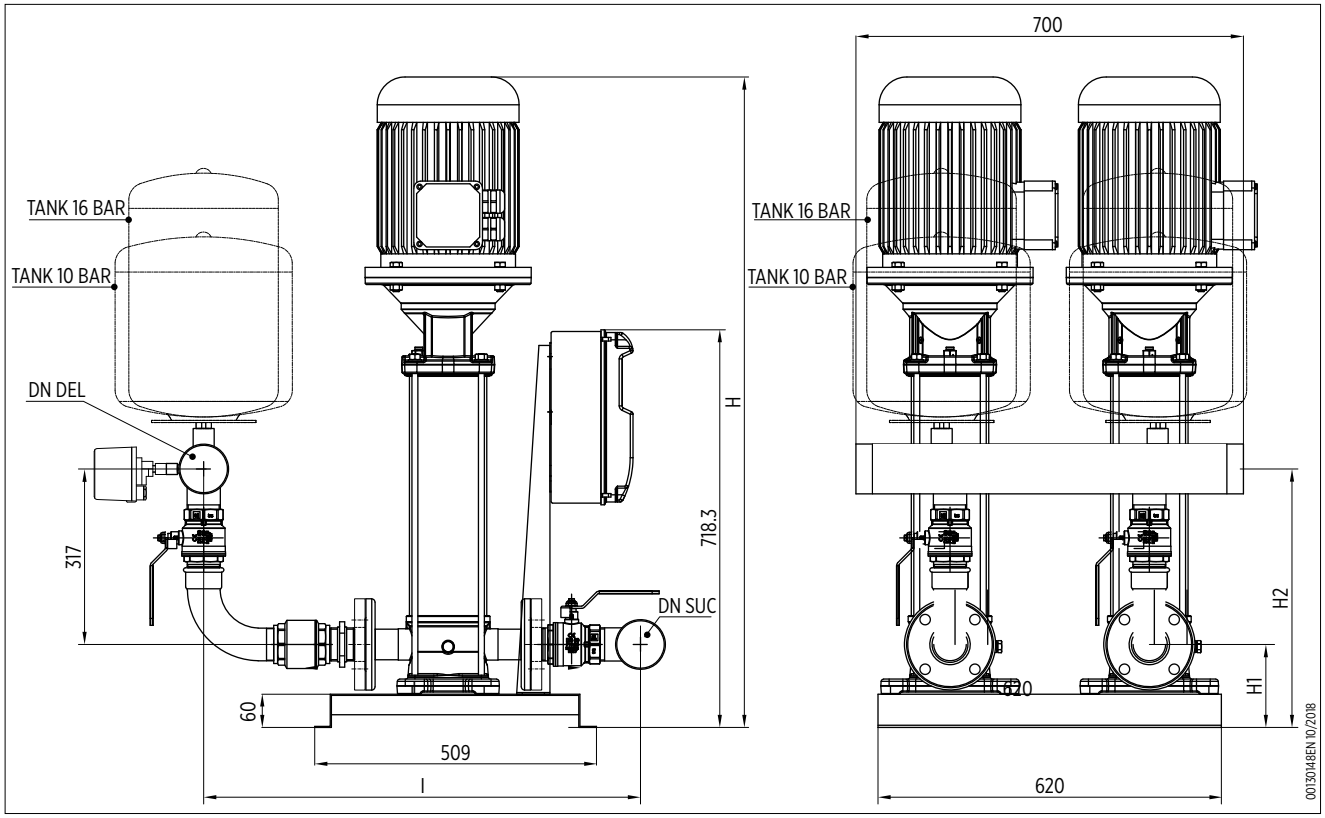
*Dimensional tolerance ± 30 mm

GPM02/EV 10 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT02/EV10/03FI011T	QE2T/15A	663	140	409	700	G 2" ½	G 2" ½	120
GPT02/EV10/04FI015T		738	140	409	700			125
GPT02/EV10/05FI015T		768	140	409	700			135
GPT02/EV10/06FI022T		798	140	409	700			140
GPT02/EV10/07FI022T		828	140	409	700			145
GPT02/EV10/08FI030T		907	140	409	700			146
GPT02/EV10/09FI030T		937	140	409	700			151
GPT02/EV10/10FI040T		967	140	409	700			152
GPT02/EV10/12FI040T		997	140	409	700			155
GPT02/EV10/12FI040T		1027	140	409	700			160
GPT02/EV10/13FI040T		1057	140	409	700			162
GPT02/EV10/15FI055T		1314	140	409	700			165

*Dimensional tolerance ± 30 mm

GPT02/EV 15-20 (THREE-PHASE VERSION)

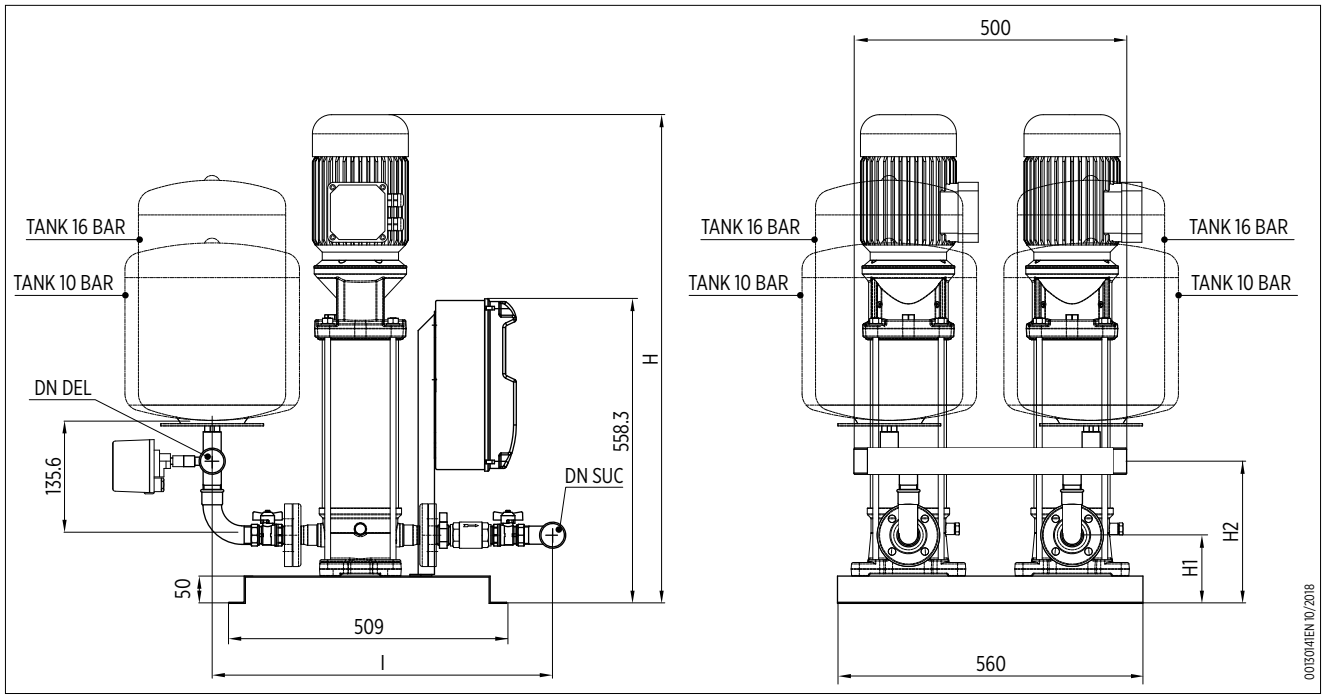


Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT02/EV15/02FI022T	QE2T/15A	835	150	467	790	G 3"	G 3"	120
GPT02/EV15/03FI030T		883	150	467	790			125
GPT02/EV15/04FI040T		931	150	467	790			140
GPT02/EV15/05FI040T		1188	150	467	790			150
GPT02/EV15/06FI055T		1236	150	467	790			165
GPT02/EV15/07FI055T		1306	150	467	790			170
GPT02/EV15/08FI075T		1354	150	467	790			175
GPT02/EV15/09FI075T		1497	150	467	790			180
GPT02/EV15/10FI110T		1497	150	467	790			190
GPT02/EV20/02FI022T	QE2T/15A	738	150	467	790	G 3"	G 3"	120
GPT02/EV20/03FI030T		835	150	467	790			125
GPT02/EV20/04FI040T		883	150	467	790			140
GPT02/EV20/05FI055T		1140	150	467	790			165
GPT02/EV20/06FI075T		1210	150	467	790			175
GPT02/EV20/07FI075T		1258	150	467	790			180
GPT02/EV20/08FI110T		1401	150	467	790			190
GPT02/EV20/09FI110T		1449	150	467	790			192
GPT02/EV20/10FI110T		1497	150	467	790			195

*Dimensional tolerance ± 30 mm

GP...02/EV SERIES - SUCTION CHECK VALVE (VA)

GP...02/EV 3

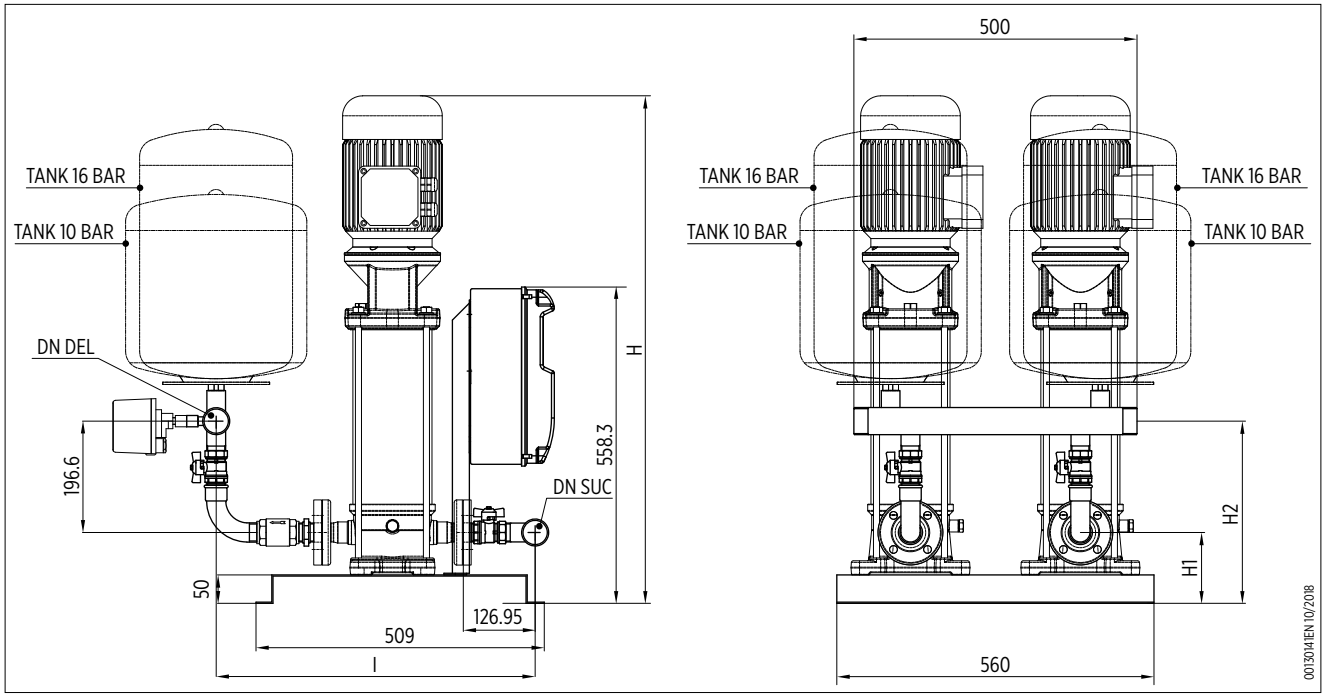


GPM02/EV 3 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPM02/EV3/04FI003M	QE2M/16A	624	125	260.6	624.12	G 2"	G 2"	74
GPM02/EV3/05FI005M		647	125	260.6	624.12			78
GPM02/EV3/06FI005M		669	125	260.6	624.12			88
GPM02/EV3/07FI007M		708	125	260.6	624.12			90
GPM02/EV3/08FI007M		730	125	260.6	624.12			92
GPM02/EV3/09FI007M		753	125	260.6	624.12			93
GPM02/EV3/10FI011M		775	125	260.6	624.12			97
GPM02/EV3/11FI011M		798	125	260.6	624.12			100
GPM02/EV3/12FI011M		820	125	260.6	624.12			105
GPM02/EV3/13FI011M		843	125	260.6	624.12			108

*Dimensional tolerance ± 30 mm

GP...02/EV 3

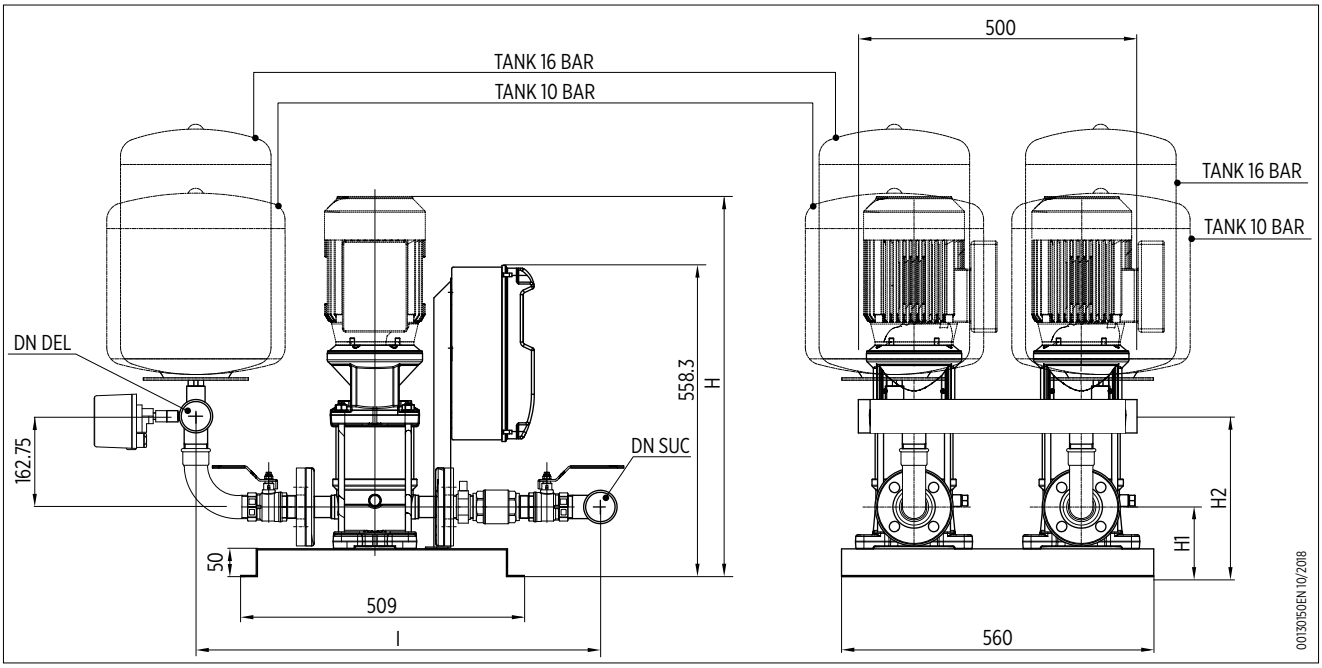


GPT02/EV 3 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT02/EV3/04FI003T	QE2T/15A	624	125	260.6	624.12	G 2"	G 2"	74
GPT02/EV3/05FI005T		647	125	260.6	624.12			78
GPT02/EV3/06FI005T		669	125	260.6	624.12			88
GPT02/EV3/07FI007T		708	125	260.6	624.12			90
GPT02/EV3/08FI007T		730	125	260.6	624.12			92
GPT02/EV3/09FI007T		753	125	260.6	624.12			93
GPT02/EV3/10FI011T		775	125	260.6	624.12			97
GPT02/EV3/11FI011T		798	125	260.6	624.12			100
GPT02/EV3/12FI011T		820	125	260.6	624.12			105
GPT02/EV3/13FI011T		843	125	260.6	624.12			108
GPT02/EV3/14FI015T		910	125	260.6	624.12			109
GPT02/EV3/15FI015T		933	125	260.6	624.12			110
GPT02/EV3/16FI015T		955	125	260.6	624.12			111
GPT02/EV3/17FI015T		978	125	260.6	624.12			112
GPT02/EV3/18FI022T		1000	125	260.6	624.12			117
GPT02/EV3/19FI022T		1023	125	260.6	624.12			118
GPT02/EV3/21FI022T		1068	125	260.6	624.12			119

*Dimensional tolerance ± 30 mm

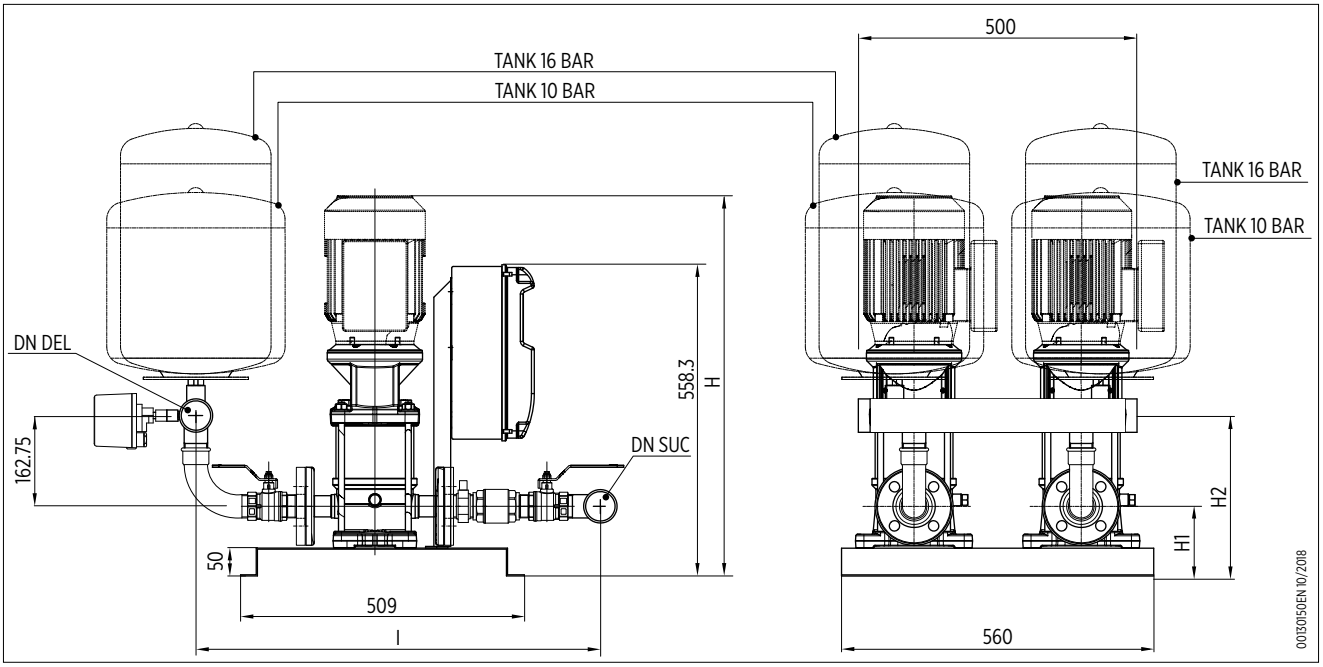
GPM02/EV 6 (SINGLE-PHASE VERSION)



Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPM02/EV6/05FI007M	QE2M/16A	680	125	287.75	725.65	G 2"	G 2"	105
GPM02/EV6/06FI007M		706	125	287.75	725.65			110
GPM02/EV6/07FI011M		732	125	287.75	725.65			115
GPM02/EV6/08FI011M		758	125	287.75	725.65			120
GPM02/EV6/09FI011M		784	125	287.75	725.65			122
GPM02/EV6/10FI015M		855	125	287.75	725.65			125
GPM02/EV6/11FI015M		881	125	287.75	725.65			127
GPM02/EV6/12FI015M		907	125	287.75	725.65			130
GPM02/EV6/13FI015M		933	125	287.75	725.65			135

*Dimensional tolerance ± 30 mm

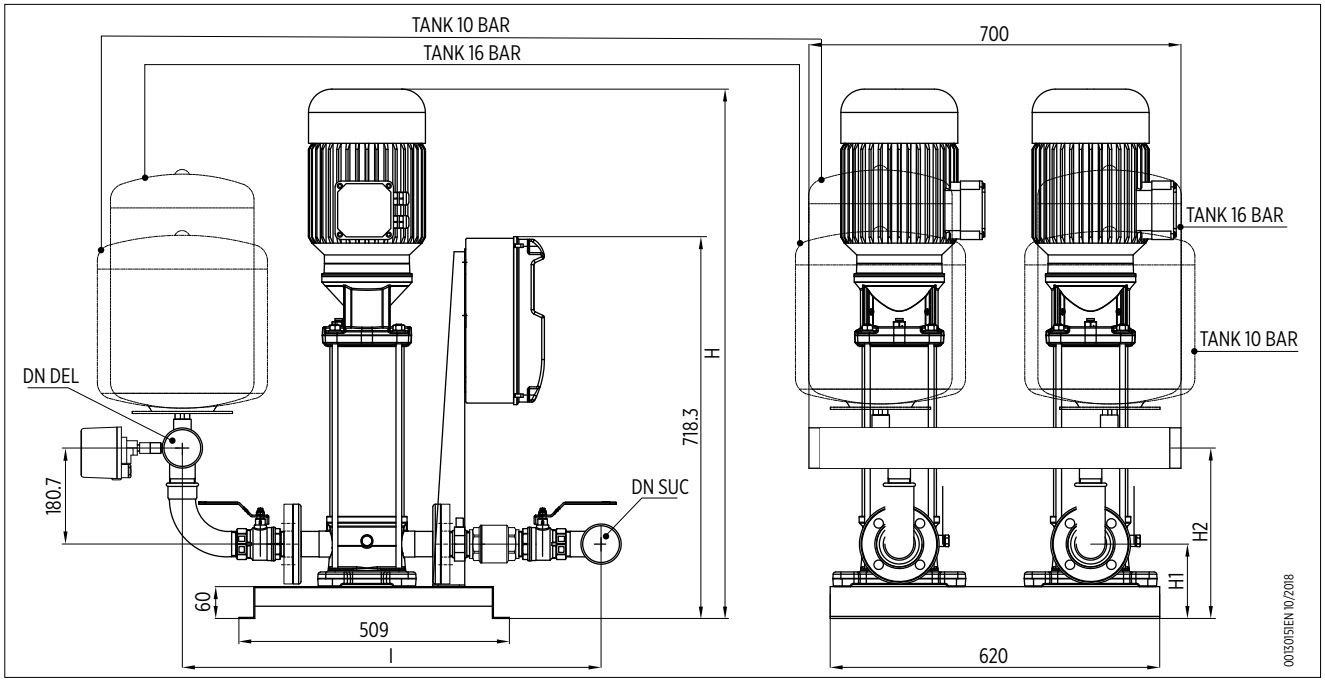
GPT02/EV 6 (THREE-PHASE VERSION)



Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT02/EV6/05FI007T	QE2T/15A	680	125	287.75	725.65	G 2"	G 2"	105
GPT02/EV6/06FI007T		706	125	287.75	725.65			110
GPT02/EV6/07FI011T		732	125	287.75	725.65			115
GPT02/EV6/08FI011T		758	125	287.75	725.65			120
GPT02/EV6/09FI011T		784	125	287.75	725.65			122
GPT02/EV6/10FI015T		855	125	287.75	725.65			125
GPT02/EV6/11FI015T		881	125	287.75	725.65			127
GPT02/EV6/12FI015T		907	125	287.75	725.65			130
GPT02/EV6/13FI015T		933	125	287.75	725.65			135
GPT02/EV6/14FI022T		959	125	287.75	725.65			135
GPT02/EV6/15FI022T		985	125	287.75	725.65			141
GPT02/EV6/16FI022T		1011	125	287.75	725.65			142
GPT02/EV6/17FI022T		1037	125	287.75	725.65			142
GPT02/EV6/18FI022T		1063	125	287.75	725.65			143
GPT02/EV6/19FI022T		1089	125	287.75	725.65			144

*Dimensional tolerance ± 30 mm

GP...02/EV 10



GPM02/EV 10 (SINGLE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPM02/EV10/03FI011M	QE2M/16A	663	140	320.7	787.7	G 2" ½	G 2" ½	120
GPM02/EV10/04FI015M		738	140	320.7	787.7			125
GPM02/EV10/05FI015M		768	140	320.7	787.7			135
GPM02/EV10/06FI022M		798	140	320.7	787.7			140
GPM02/EV10/07FI022M		828	140	320.7	787.7			145

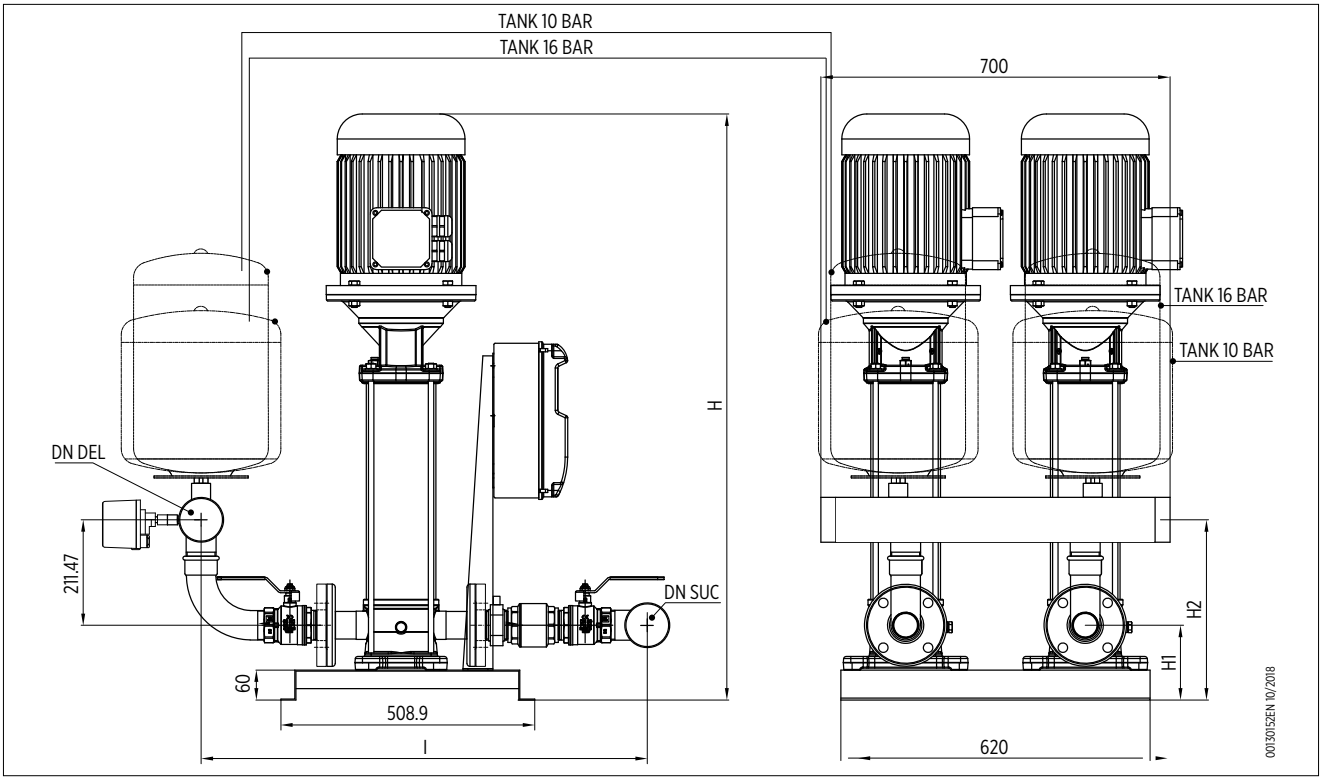
*Dimensional tolerance ± 30 mm

GPT02/EV 10 (THREE-PHASE VERSION)

Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT02/EV10/03FI011T	QE2T/15A	663	140	320.7	787.7	G 2" ½	G 2" ½	120
GPT02/EV10/04FI015T		738	140	320.7	787.7			125
GPT02/EV10/05FI015T		768	140	320.7	787.7			135
GPT02/EV10/06FI022T		798	140	320.7	787.7			140
GPT02/EV10/07FI022T		828	140	320.7	787.7			145
GPT02/EV10/08FI030T		907	140	320.7	787.7			146
GPT02/EV10/09FI030T		937	140	320.7	787.7			151
GPT02/EV10/10FI040T		967	140	320.7	787.7			152
GPT02/EV10/11 FI040T		997	140	320.7	787.7			155
GPT02/EV10/12FI040T		1027	140	320.7	787.7			160
GPT02/EV10/13FI040T		1057	140	320.7	787.7			162
GPT02/EV10/15FI055T		1314	140	320.7	787.7			165

*Dimensional tolerance ± 30 mm

GPT02/EV 15 -20 (THREE-PHASE VERSION)

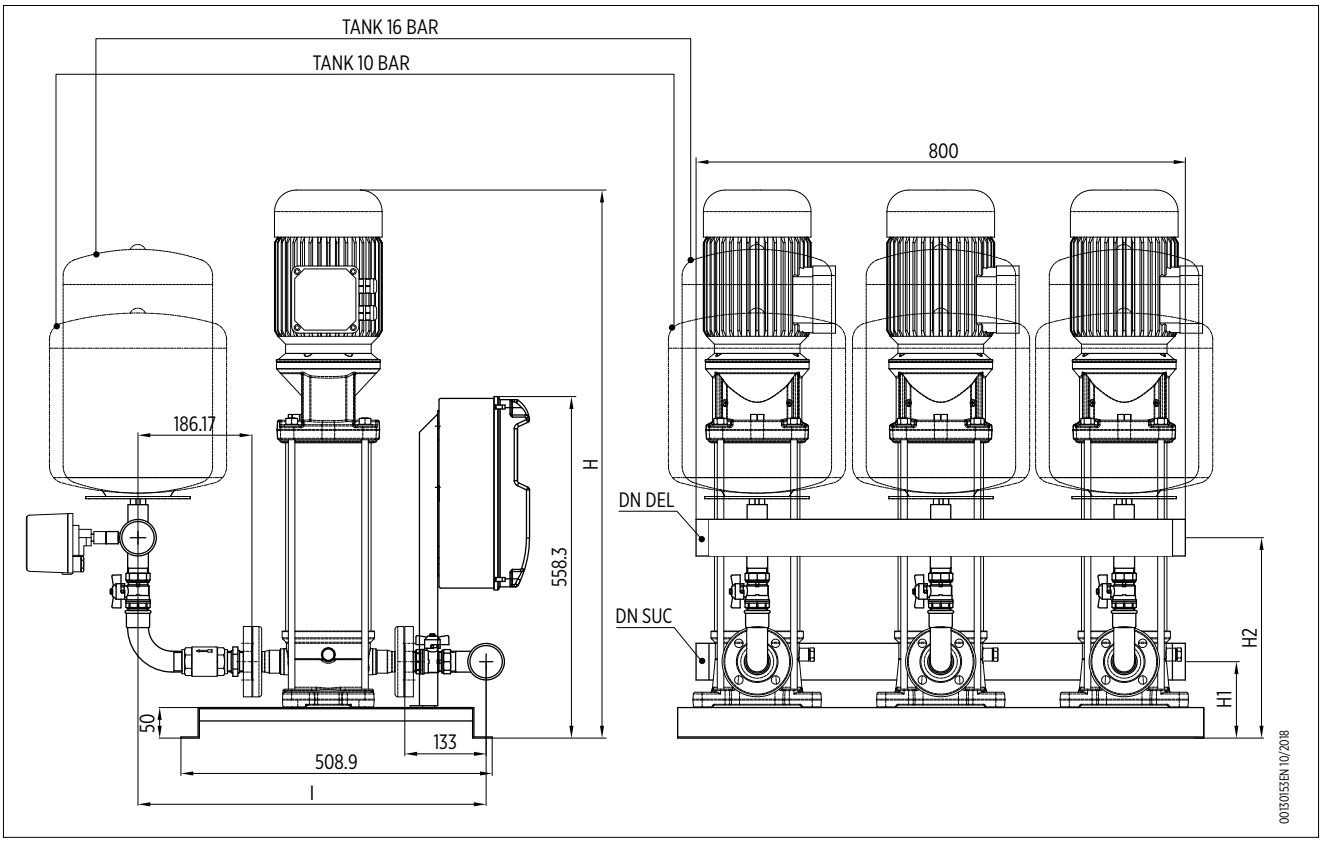


Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT02/EV15/02FI022T	QE2T/15A	738	150	467	790	G 3"	G 3"	120
GPT02/EV15/03FI030T		835	150	467	790			125
GPT02/EV15/04FI040T		883	150	467	790			140
GPT02/EV15/05FI040T		931	150	467	790			150
GPT02/EV15/06FI055T		1188	150	467	790			165
GPT02/EV15/07FI055T		1236	150	467	790			170
GPT02/EV15/08FI075T		1306	150	467	790			175
GPT02/EV15/09FI075T		1354	150	467	790			180
GPT02/EV15/10FI110T		1497	150	467	790			190
GPT02/EV20/02FI022T	QE2T/15A	738	150	467	790	G 3"	G 3"	120
GPT02/EV20/03FI030T		835	150	467	790			125
GPT02/EV20/04FI040T		883	150	467	790			140
GPT02/EV20/05FI055T		1140	150	467	790			165
GPT02/EV20/06FI075T		1210	150	467	790			175
GPT02/EV20/07FI075T		1258	150	467	790			180
GPT02/EV20/08FI110T		1401	150	467	790			190
GPT02/EV20/09FI110T		1449	150	467	790			192
GPT02/EV20/10FI110T		1497	150	467	790			195

*Dimensional tolerance ± 30 mm

GPT03/EV SERIES - DELIVERY CHECK VALVE (VM)

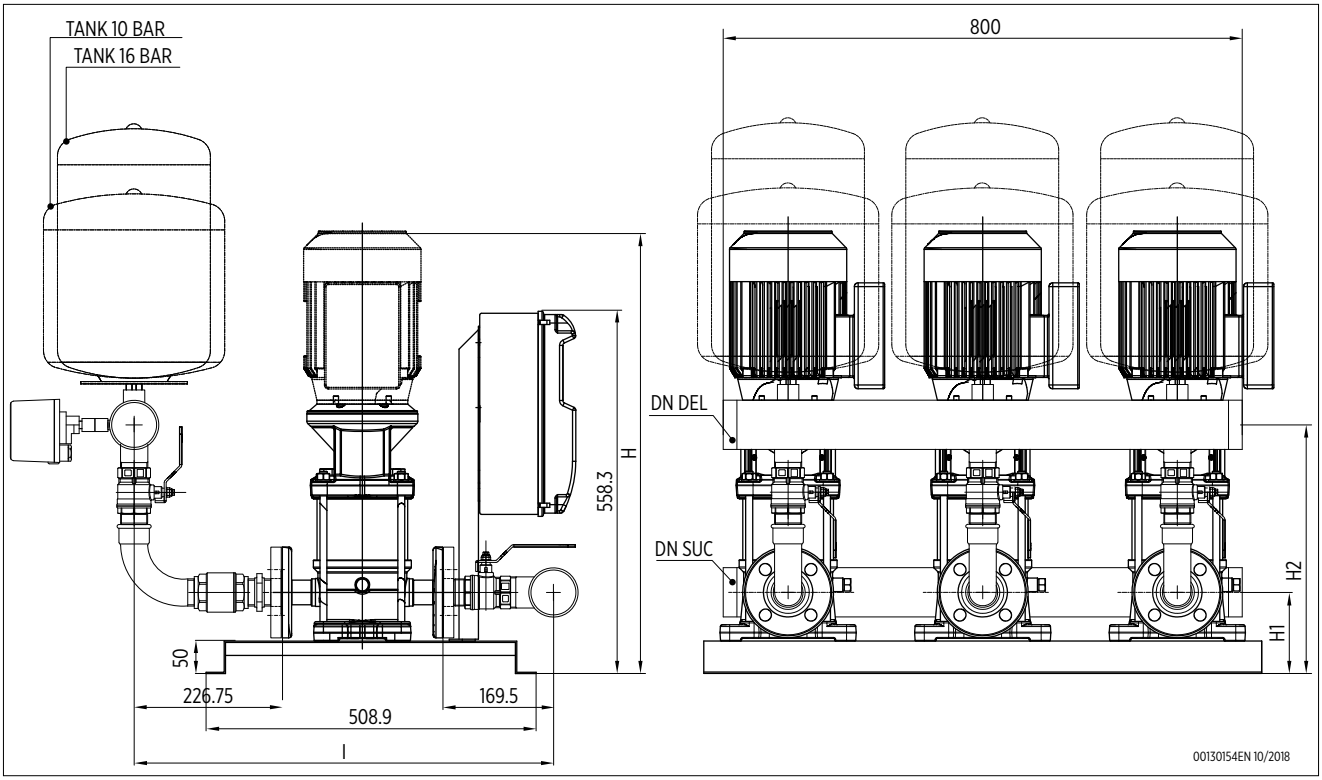
GPT03/EV3 (THREE-PHASE VERSION)



Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT03/EV3/04FI003T	QE3T/15A	624	125	327.7	569.17	G 2"	G 2"	128
GPT03/EV3/05FI005T		647	125	327.7	569.17			135
GPT03/EV3/06FI005T		669	125	327.7	569.17			152
GPT03/EV3/07FI007T		708	125	327.7	569.17			155
GPT03/EV3/08FI007T		730	125	327.7	569.17			159
GPT03/EV3/09FI007T		753	125	327.7	569.17			160
GPT03/EV3/10FI011T		775	125	327.7	569.17			167
GPT03/EV3/11FI011T		798	125	327.7	569.17			173
GPT03/EV3/12FI011T		820	125	327.7	569.17			181
GPT03/EV3/13FI011T		843	125	327.7	569.17			186
GPT03/EV3/14FI015T		910	125	327.7	569.17			188
GPT03/EV3/15FI015T		933	125	327.7	569.17			190
GPT03/EV3/16FI015T		955	125	327.7	569.17			191
GPT03/EV3/17FI015T		978	125	327.7	569.17			193
GPT03/EV3/18FI022T		1000	125	327.7	569.17			202
GPT03/EV3/19FI022T		1023	125	327.7	569.17			204
GPT03/EV3/21FI022T		1068	125	327.7	569.17			205

*Dimensional tolerance ± 30 mm

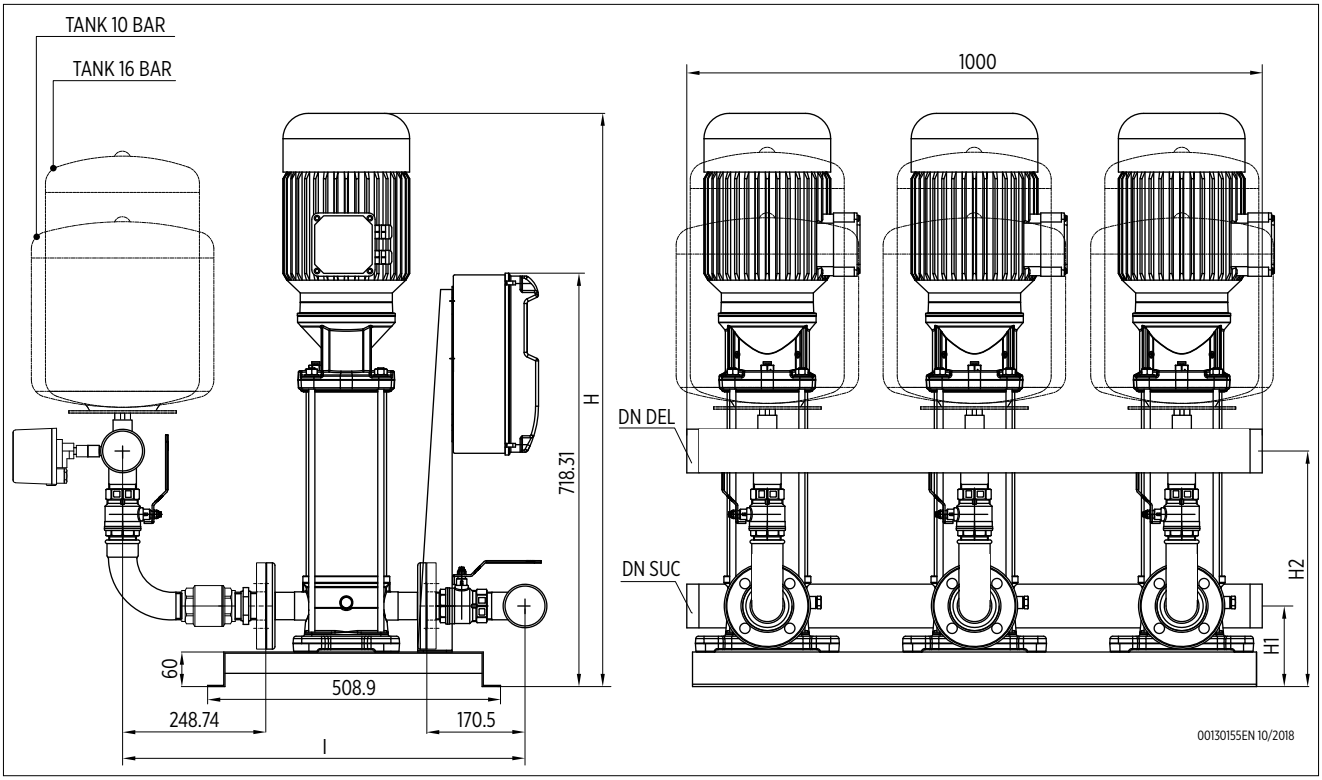
GPT03/EV 6 (THREE-PHASE VERSION)



Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT03/EV6/05FI007T	QE3T/15A	680	125	383.3	646.25	G 2" ½	G 2" ½	181
GPT03/EV6/06FI007T		706	125	383.3	646.25			190
GPT03/EV6/07FI011T		732	125	383.3	646.25			198
GPT03/EV6/08FI011T		758	125	383.3	646.25			207
GPT03/EV6/09FI011T		784	125	383.3	646.25			210
GPT03/EV6/10FI015T		855	125	383.3	646.25			216
GPT03/EV6/11FI015T		881	125	383.3	646.25			219
GPT03/EV6/12FI015T		907	125	383.3	646.25			224
GPT03/EV6/13FI015T		933	125	383.3	646.25			233
GPT03/EV6/14FI022T		959	125	383.3	646.25			233
GPT03/EV6/15FI022T		985	125	383.3	646.25			243
GPT03/EV6/16FI022T		1011	125	383.3	646.25			245
GPT03/EV6/17FI022T		1037	125	383.3	646.25			245
GPT03/EV6/18FI022T		1063	125	383.3	646.25			247
GPT03/EV6/19FI022T		1089	125	383.3	646.25			248

*Dimensional tolerance ± 30 mm

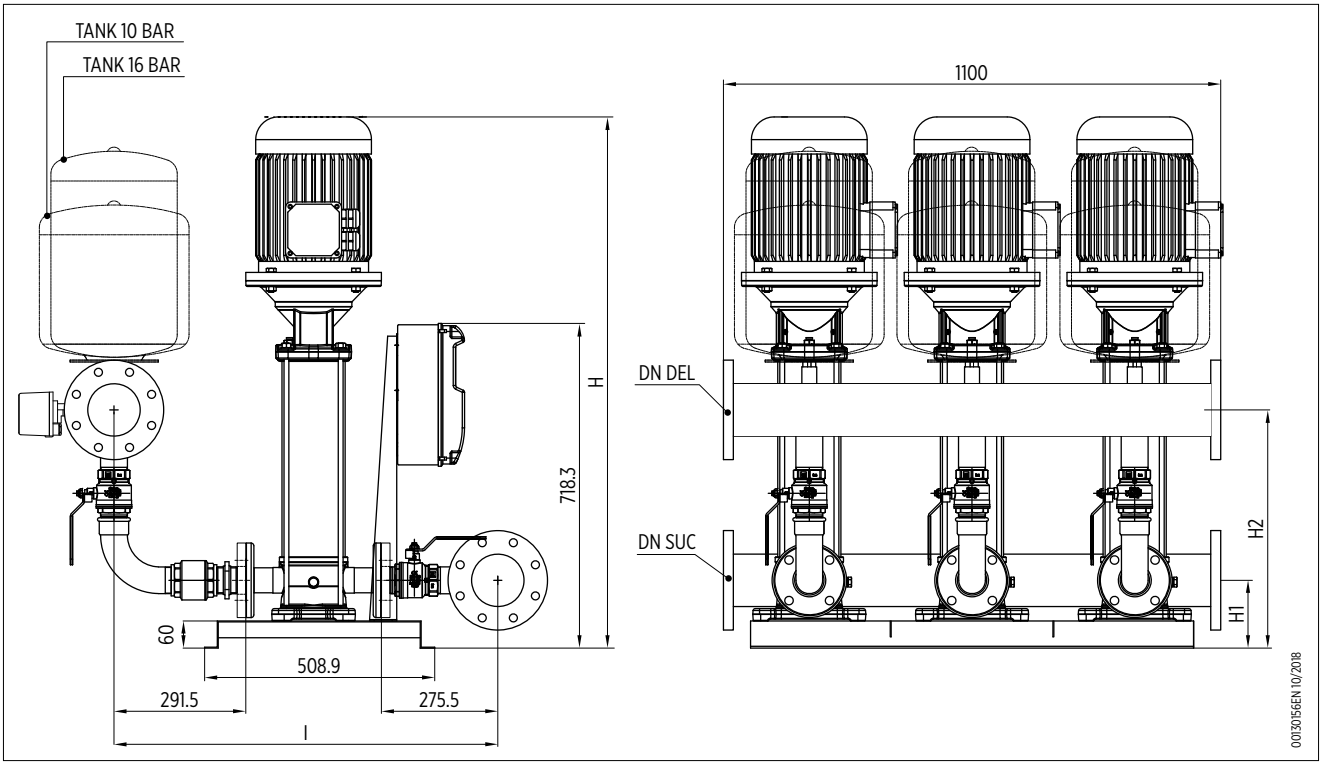
GPT03/EV 10 (THREE-PHASE VERSION)



Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT03/EV10/03FI011T	QE3T/15A	663	140	409.2	699.24	G 2" ½	G 2" ½	207
GPT03/EV10/04FI015T		738	140	409.2	699.24			216
GPT03/EV10/05FI015T		768	140	409.2	699.24			233
GPT03/EV10/06FI022T		798	140	409.2	699.24			242
GPT03/EV10/07FI022T		828	140	409.2	699.24			250
GPT03/EV10/08FI030T		907	140	409.2	699.24			252
GPT03/EV10/09FI030T		937	140	409.2	699.24			260
GPT03/EV10/10FI040T		967	140	409.2	699.24			262
GPT03/EV10/11FI040T		997	140	409.2	699.24			267
GPT03/EV10/12FI040T		1027	140	409.2	699.24			276
GPT03/EV10/13FI040T		1057	140	409.2	699.24			279
GPT03/EV10/15FI055T		1314	140	409.2	699.24			285

*Dimensional tolerance ± 30 mm

GPT03/EV 15 -20 (THREE-PHASE VERSION)



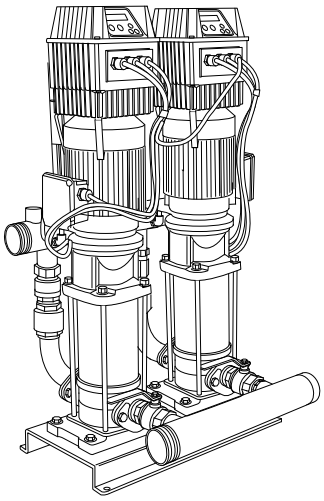
Model	Electric control panel	Dimensions * [mm]				Manifolds		Weight [Kg]
		H	H1	H2	I	DN ASP	DN MAN	
GPT03/EV15/02FI022T	QE3T/15A	738	150	527	849	DN100	DN100	207
GPT03/EV15/03FI030T		835	150	527	849			216
GPT03/EV15/04FI040T		883	150	527	849			242
GPT03/EV15/05FI040T		931	150	527	849			259
GPT03/EV15/06FI055T		1188	150	527	849			285
GPT03/EV15/07FI055T		1236	150	527	849			293
GPT03/EV15/08FI075T		1306	150	527	849			302
GPT03/EV15/09FI075T		1354	150	527	849			311
GPT03/EV15/10FI110T	QM3T/25A	1497	150	527	849			328
GPT03/EV20/02FI022T	QE3T/15A	738	150	527	849	DN100	DN100	207
GPT03/EV20/03FI030T		835	150	527	849			216
GPT03/EV20/04FI040T		883	150	527	849			242
GPT03/EV20/05FI055T		1140	150	527	849			285
GPT03/EV20/06FI075T		1210	150	527	849			302
GPT03/EV20/07FI075T		1258	150	527	849			311
GPT03/EV20/08FI110T	QM3T/25A	1401	150	527	849			328
GPT03/EV20/09FI110T		1449	150	527	849			331
GPT03/EV20/10FI110T		1497	150	527	849			336

*Dimensional tolerance ± 30 mm

Booster sets
GD Series

GD SERIES

Variable-speed booster sets with DrivE-Tech and Drive-Tech MINI inverters



DESCRIPTION

- The GD series booster sets consist of two or three identical electric pumps coupled in parallel via manifolds, shut-off valves, check valves and fixed on a single base.
- The electric pumps are controlled by one inverter for each electric pump, which modulates the operating frequency in order to maintain a constant set value.

SPECIFICATIONS

- Flow: up to 84 m^3/h
- Head:
  - up to 104 m for sets with EM and EH electric pumps
  - up to 160 m for sets with EV electric pumps
- Maximum operating pressure:
  - PN10 for sets with EM and EH electric pumps
  - PN16 for sets with EV electric pumps
- The sum of the inlet pressure and the maximum pressure developed by the electric pump at zero flow must always be less than the maximum working pressure (PN) allowed by the set
- Supply voltage:
  - 1x230 V 50 Hz for GDM model sets
  - 3x400 V 50 Hz for GDT model sets
- Ambient temperature at nominal load: max 40°C
- Relative humidity: max 50% at 40 °C (without condensation)
- Max. altitude at nominal load: 1000 metres above sea level
- Pumped liquid temperature: clean water between +5 °C and +35 °C

SET IDENTIFICATION CODE

GD | M | 02 | VM / EM3/03RG007T6 / DTm / ...

- GD: Variable speed set with inverter DrivE-Tech/Drive-Tech MINI
- M: Set power supply voltage: M (single-phase set), T (three-phase set)
- 02: Number of electric pumps
- VM: Position of check valves: VM (delivery valves)
- EM3/03RG007T6: Electric pump model
- DTm: DTm (Set inverter Drive-Tech MINI)
- ...: Set speciality ("empty": standard configuration), "Empty" (Set with inverter DrivE-Tech)

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VERSIONS AVAILABLE

- Different materials for manifolds, check valves and shut-off valves

COMPOSITION

- EH, EM or EV series electric pumps
- Base and electrical panel door in powder-coated sheet metal
- Galvanised iron suction and delivery manifolds
- Counter-flanges for EV series electric pumps
- Suction and Deliveryshut-off valves for each electric pump
- Delivery check valve in each electric pump
- Female cast iron caps for manifolds closure
- 1 electronic pressure sensor for each installed electric pump
- 1 pressure gauge
- Fitting for use with diaphragm tank
- One DrivE-Tech or Drive-Tech MINI inverter per electric pump
- Inverter power protection switchboard
- Galvanised steel screws

MAIN PARTS

Part	GD...02	GD...03	GD...04
Electric pumps	2	3	4
Inverter	2	3	4
Pressure transmitters	2	3	4
Check valve	2	3	4
Shut-off valve	4	6	8

MATERIALS IN CONTACT WITH LIQUID

Component	Set version			
	Standard	C304 *	A316 **	B316 ***
Electric pumps	See pump description	See pump description	See pump description	See pump description
Suction and delivery manifolds	Galvanised iron	304SS	316SS	316SS
Pressure transmitters	304SS	304SS	304SS	316SS
Pressure gauge	Brass	Brass	304SS	Not present
Check valve	Brass / Nickel-plated brass	Brass / Nickel-plated brass	316SS	316SS
Shut-off valve	Nickel-plated brass / Coated cast iron	Nickel-plated brass / Coated cast iron	316SS	316SS
Pump counter-flanges (EV pumps only)	Galvanised iron	Galvanised iron	316SS	316SS
Other components	Brass / Nickel-plated brass / Coated cast iron / Cast iron	Brass / Nickel-plated brass / Coated cast iron / Cast iron	316SS	316SS

* /C304: Set with suction and delivery manifolds in A304 steel. All other components that come into contact with pumped liquid as in the standard version.
** /A316: Set with suction and delivery manifolds in A316 steel. Other components that come into contact with pumped liquid in A316. Pressure gauge and pressure switches in A304. Set screws in galvanised iron.
*** /B316: Set with suction and delivery manifolds in A316 steel. Other components that come into contact with pumped liquid in A316. Set without pressure gauge. Set screws in galvanized iron.

POSITION OF CHECK VALVES

- All GD series sets are supplied with check valves on the delivery side of the electric pumps (VM). In the case of suction above the pressure head, the installation of a check valve on the set's suction pipe is mandatory.

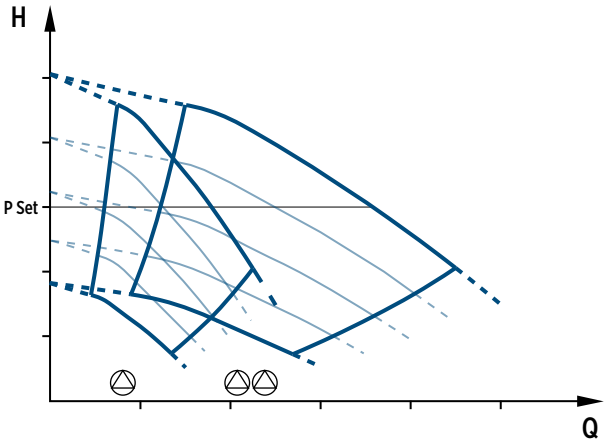
OPERATION PRINCIPLE

When the system pressure reduces due to water abstraction, an electric pump starts up to manage the requested water flow rate while maintaining the pressure at the set value (P Set); the second and third electric pumps (if present) start up consecutively when the first electric pump reaches its maximum rotation speed. The set point value (P Set) can be adjusted by the user using buttons on the inverter.

In applications with inverters in parallel (sets with two or three electric pumps), each inverter controls and protects the electric pump to which it is connected, while the work is distributed among the various electric pumps of the set based on the actual working hours of each electric pump.

In case of failure of one set unit, the remaining pumps continue to operate.

Each inverter is capable of: protecting the motor from dry-running overloads, smooth start-up and stop to increase the system's operational life and to reduce absorption peaks, indicating current consumption and power supply voltage and recording operating hours.



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DRIVE-TECH AND DRIVE-TECH MINI INVERTER SWITCHBOARD PROTECTION

DESCRIPTION

Power control panel for the protection of two DrivE-Tech or Drive-Tech MINI frequency converters

SPECIFICATIONS

- Mains input:
  - 1~ 50/60 Hz 230 V
  - 3~ 50/60 Hz 400 V
- Protection degree: IP55
- Ambient temperature: max 40 °C
- Relative humidity: max 50% at 40 °C (without condensation)

COMPOSITION

- Polycarbonate casing with transparent door
- Automatic protection circuit breakers, one for each inverter, with type C characteristic curve
- Cable glands

DIMENSIONS

No. Inverter	Phase	Width [mm]	Height [mm]	Depth [mm]
2	Single phase/Three-phase	155	235	100
3	Single phase	155	235	100
3	Three-phase	340	300	140

DRIVE-TECH MINI INVERTER

APPLICATIONS

- Booster sets
- HVAC systems with electric circulation pumps
- Control of submersible electric pumps (when installed on the wall)

FEATURES

- Energy saving thanks to variable speed control
- Smooth start-up and stop
- Longer system life and greater system reliability
- Simplified installation on the motor or on the wall
- Quick commissioning through guided initial configuration
- Installation possible in damp and dusty environments due to IP55 degree protection
- High thermal and mechanical performance due to all-aluminium casing and independent ventilation

SPECIFICATIONS

- **Advanced user experience due to:**
  - Programming and monitoring via smartphone and FE Connect, available for Android, iOS devices
  - Remote control using a smartphone placed nearby as a modem
  - Copy / pasting pre-imposed programmes between different devices
  - Ability to send reports via email
  - Multilingual support
- **Multiple control methods:**
  - Constant pressure control
  - Constant or proportional differential pressure control
  - Constant temperature control
  - Constant differential temperature control
  - Constant flow control
  - Control with external frequency signal or pre-set at 1 or 2 values
- **Integrated protections against:**
  - Overvoltage and undervoltage
  - Overcurrent and no load
  - Dry running
  - Overheating
  - EMC compatibility for home environment:
  - Integrated PFC (P.F. 1) to comply with EN61000-3-2
  - Integrated filter for Category C1 (EN61800-3), Class B (EN55011)
- **Group operation (COMBO):**
  - Up to 8 connected units
  - Alternating operation to equalise electric pump wear
  - Master or slave switching in case of failure of one unit, to guarantee the continued operation of the set
- **Advanced motor controls:**
  - Control of new generation asynchronous motors
  - Sensorless control of synchronous permanent magnet motors
- **Inputs and outputs:**
  - 2 programmable digital inputs for motor start and stop
  - Modbus RTU serial port
  - 2 relay outputs for alarm and motor status signalling
  - 2 4-20 mA analogue inputs
  - 2 0-10 V analogue inputs

SYSTEM PERFORMANCE

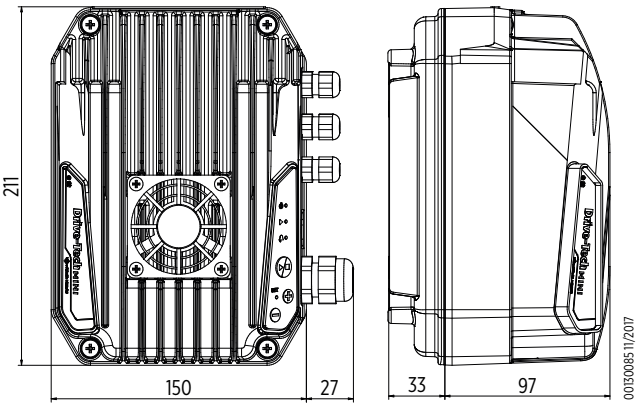
- Line-side power factor: 1
- Mains supply frequency: 50-60 Hz (± 2%)
- Storage temperature: from -30°C to +70°C
- Minimum ambient working temperature at nominal load: -10 °C
- Maximum working temperature at nominal load: +40 °C
- Maximum altitude at nominal load: 1000 metres above sea level
- Relative humidity: max 95% (without condensation)
- Degree of protection: IP55 (NEMA 4) or degree of motor protection if mounted on the motor (protect the device from direct exposure to sunlight and atmospheric influences)
- Connectivity: RS 485 serial port for COMBO operation (up to 8 units) + SMART Bluetooth communication + RS485 serial port for MODBUS RTU communication

TRANSDUCER SPECIFICATIONS

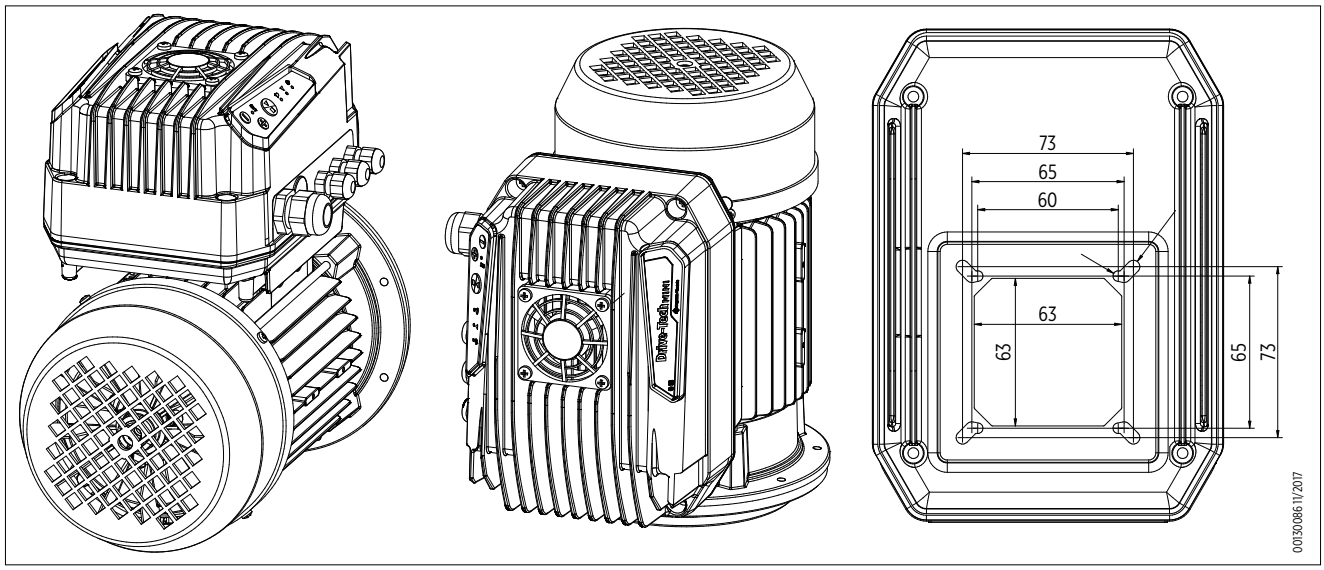
- Nominal output signal (protected against short circuits): 4 ÷ 20 mA
- Power supply voltage [U_B], antipolarity protection: 9 ÷ 28 V
- Sensor temperature range: 0 °C ÷ +80 °C
- Ambient temperature range (depending on electrical connection): -20 °C ÷ +80 °C
- Shielded cable: 2 m
- Degree of protection achieved by coupling with the connector: IP67

DIMENSIONAL DATA

Model	Vin [Vac] ± 15 %	Max Vout [V]	Max I input [A]	Max I out [A]	Typical motor power P2 [kW]
DTm 2.005 M/T 3 A	1 x 230	3 x 230	4.5	3	0.55
DTm 2.011 M/T 5 A	1 x 230	3 x 230	7.5	5	1.1
DTm 2.015 M/T 7,5 A	1 x 230	3 x 230	11	7.5	1.5
DTm T/T 4.011 4 A	3 X 400	3 X 400	3.7	4	1.1
DTm T/T 4.022 6 A	3 X 400	3 X 400	5.4	6	2.2
DTm T/T 4.040 9 A	3 X 400	3 X 400	8	9	4



INSTALLATION DRAWING



Can be installed directly on board the motor instead of the electric pump terminal box cover with horizontal or vertical axis.

DRIVE-TECH INVERTER

APPLICATIONS

- Booster sets
- HVAC systems with electric circulation pumps
- Control of submersible electric pumps (wall-mounted inverter with kit)

FEATURES

- Energy saving thanks to variable speed control
- Smooth start-up and stop
- Longer system life and greater system reliability
- Simplified installation on the motor or on the wall
- Quick commissioning through guided initial configuration
- Installation possible in damp and dusty environments due to IP55 degree protection
- High thermal and mechanical performance thanks to all-aluminium casing

SPECIFICATIONS

- **Advanced user experience due to:**
  - Programming and monitoring via display or smartphone and FE Connect, available for Android, iOS devices
  - Remote control using a smartphone placed nearby as a modem
  - Copy / pasting pre-imposed programmes between different devices
  - Ability to send reports via email
  - Multilingual support
- **Multiple control methods:**
  - Constant pressure control
  - Constant or proportional differential pressure control
  - Constant temperature control
  - Control at constant differential temperature
  - Constant flow control
  - Control with external frequency signal or pre-set at 1 or 2 values
- **Integrated protections against:**
  - Overvoltage and undervoltage
  - Overcurrent and no load
  - Dry running
  - Overheating
- **EMC compatibility:**
  - Each inverter is equipped with an integrated EMI filter to comply with EN55011 Class A (or EN61800-3 Category C2). By installing an additional input filter, it is possible to achieve class B (C1)
- **Group operation (COMBO):**
  - Up to 8 connected units
  - Alternated operation to equalise electric pump wear
  - Automatic exchange between Master and Slave units in case of failure of one unit to guarantee the continued operation of the set
- **Advanced motor controls:**
  - Control of new generation asynchronous motors

SYSTEM PERFORMANCE

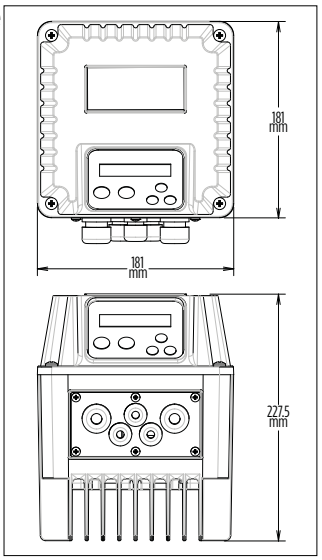
- Mains supply frequency: 50-60 Hz (± 2%)
- Maximum working temperature at nominal load: +40 °C
- Maximum altitude at nominal load: 1000 metres above sea level
- Relative humidity: max 95% (without condensation)
- Degree of protection: IP55 (NEMA 4) or degree of motor protection if mounted on the motor (protect the device from direct exposure to sunlight and atmospheric influences)
- Connectivity: RS 485 serial port for COMBO operation (up to 8 units) + SMART Bluetooth communication + RS485 serial port for MODBUS RTU communication

ELECTRICAL FEATURES AND PERFORMANCE

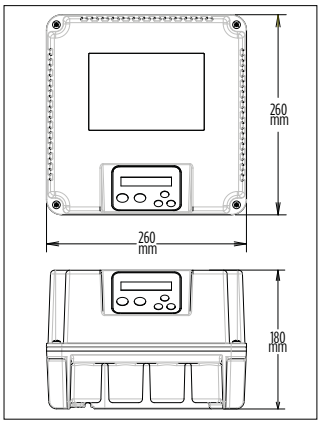
DrivE-Tech model	V_{in} ± 15% [V]	max V_{out} [V]	Max current at input [A]	Max current at output [A]	Typical motor * P_2 [kW]	Size
2,015	1 X 230	1 x 230	15	9	1.1	1
		3 x 230		7	1.5	1
2,030	1 x 230	1 x 230	20	9	1.5	1
		3 x 230		11	3	1
2,040	1 x 230	3 x 230	38	18	4	2
2,055	3x 230	3 x 230	53	25	5.5	2
3,040	3 x 230	3 x 230	21	18	4	2
3,055	3 x 230	3 x 230	31	25	5.5	2
3,075	3 x 230	3 x 230	35	30	7.5	2
4,022	3 x 400	3 x 400	10	6	2.2	1
4,040	3 x 400	3 x 400	13.5	9	4	1
4,055	3 x 400	3 x 400	16	14	5.5	2
4,075	3 x 400	3 x 400	21	18	7.5	2
4,110	3 x 400	3 x 400	31	25	11	2
4,150	3 x 400	3 x 400	35	30	15	2
4,185	3 x 400	3 x 400	42	38	18.5	3
4,220	3 x 400	3 x 400	52	48	22	3
4,300	3 x 400	3 x 400	68	65	30	3
4,370	3 x 400	3 x 400	78	75	37	3
4,450	3 x 400	3 x 400	88	85	45	3

* Typical power. Refer to the motor current when selecting the appropriate DrivE-Tech model

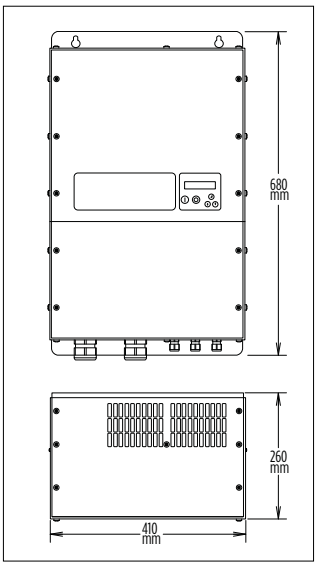
Size 1



Size 2



Size 3



TECHNICAL FEATURES

- Power supply frequency: 50/60 Hz (± 2%)
- Maximum ambient temperature at nominal current: 40 °C (104 °F)
- Maximum altitude at nominal current: 1000 metres above sea level
- Degree of protection: IP55 (size 1, 2); IP54 (size 3)
- Settable digital output signals (normally open or normally closed):
  - 1) Motor start signal
  - 2) Alarm signal
  - 3) DOL 1 pump signal
  - 4) DOL 2 pump signal
- Analogue input (10 or 15 V cc):
  - 1) 4-20 mA
  - 2) 4-20 mA
  - 3) 4-20 mA / 0-10 Vdc (settable)
  - 4) 4-20 mA / 0-10 Vdc (settable)
  - 4 digital inputs, normally open or normally closed (settable), for starting and stopping the motor
- RS485 serial communication

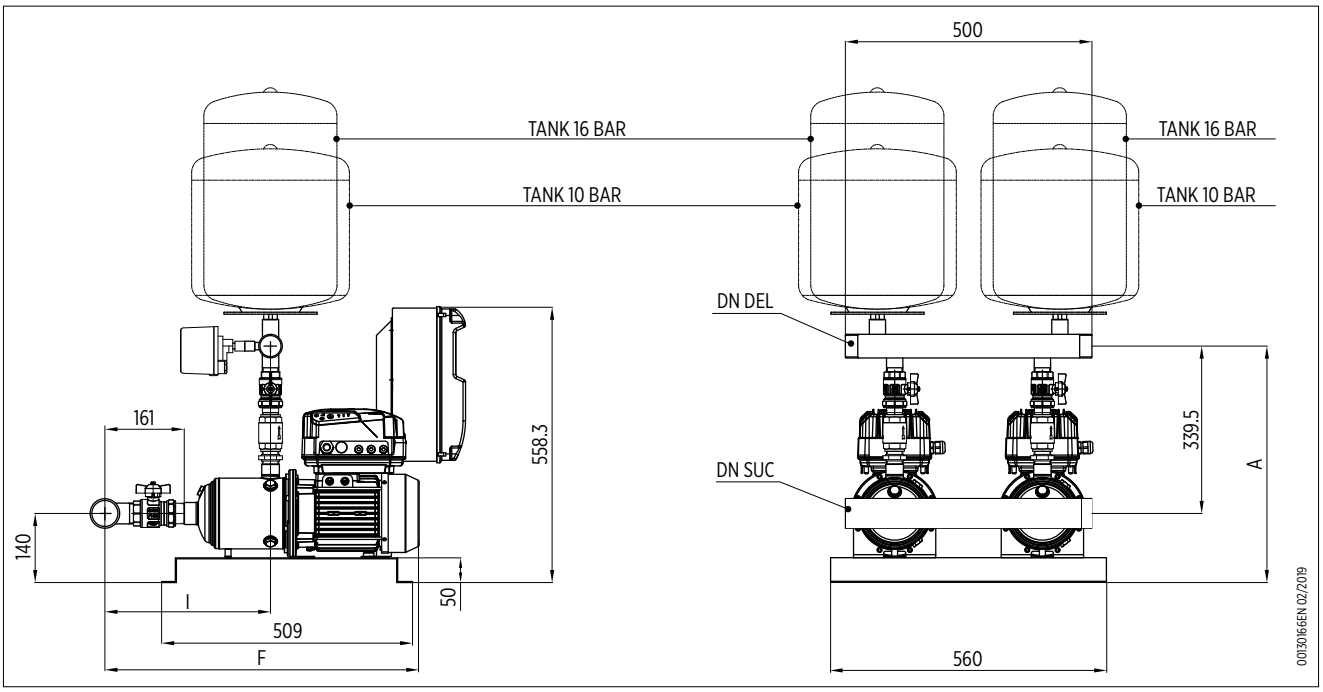
INSTALLATION

- DrivE-Tech can be installed directly on the motor fan cover or fixed to the wall.
- **Motor mounting kit:**:
  - The motor cooling fan also cools the DrivE-Tech.
  - The special assembly kit allows a solid coupling between the two units.

Booster sets
GD Series
Data and dimensional drawings

GD02 DTm SERIES - DELIVERY CHECK VALVE (VM)

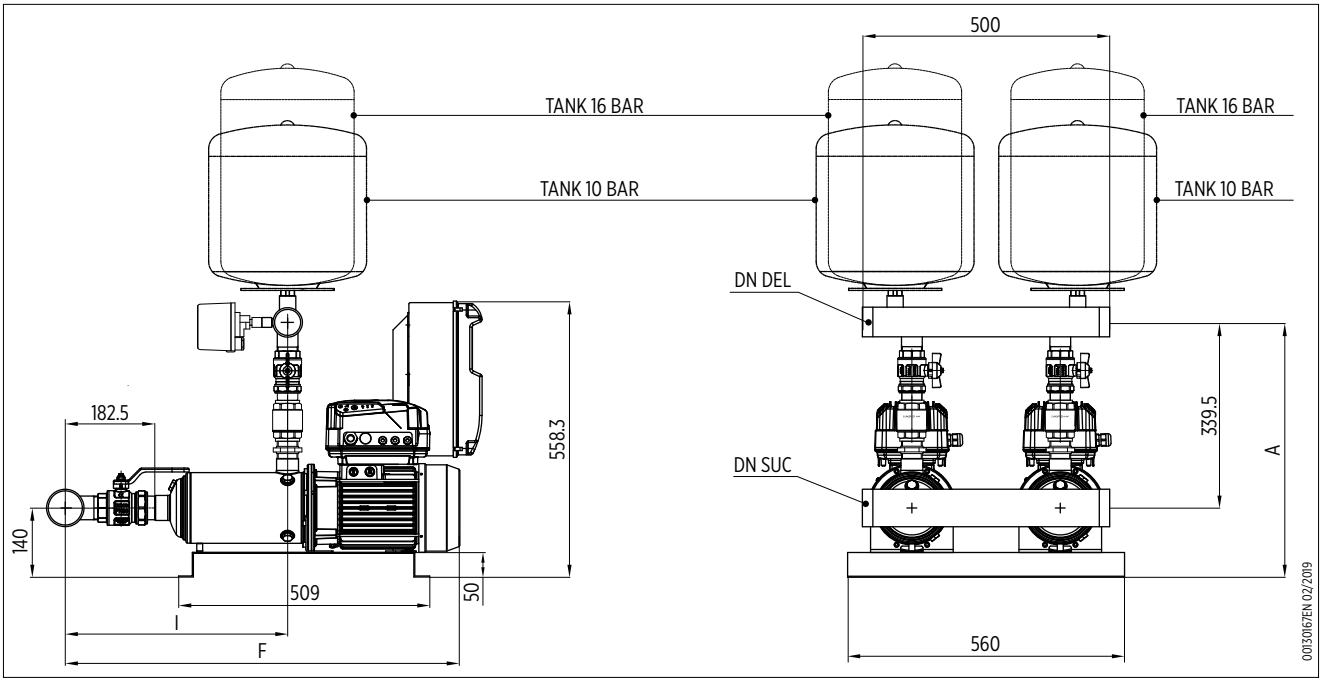
GDM02/EH DTm 3-5 (SINGLE-PHASE VERSION)



Model	Dimensions * [mm]			Manifolds		Weight [Kg]
	A	F	I	DN ASP	DN MAN	
GDM02VM/EH3/03I007T6/DTm	479.5	524	264	G 2"	G 1" ½	50
GDM02VM/EH3/05I015T6/DTm	479.5	609	312			52
GDM02VM/EH3/07I022T6/DTm	479.5	704	360			60
GDM02VM/EH5/03I011T6/DTm	479.5	524	264	G 2"	G 1" ½	60
GDM02VM/EH5/05I022T6/DTm	479.5	656	312			65

*Dimensional tolerance ± 30 mm

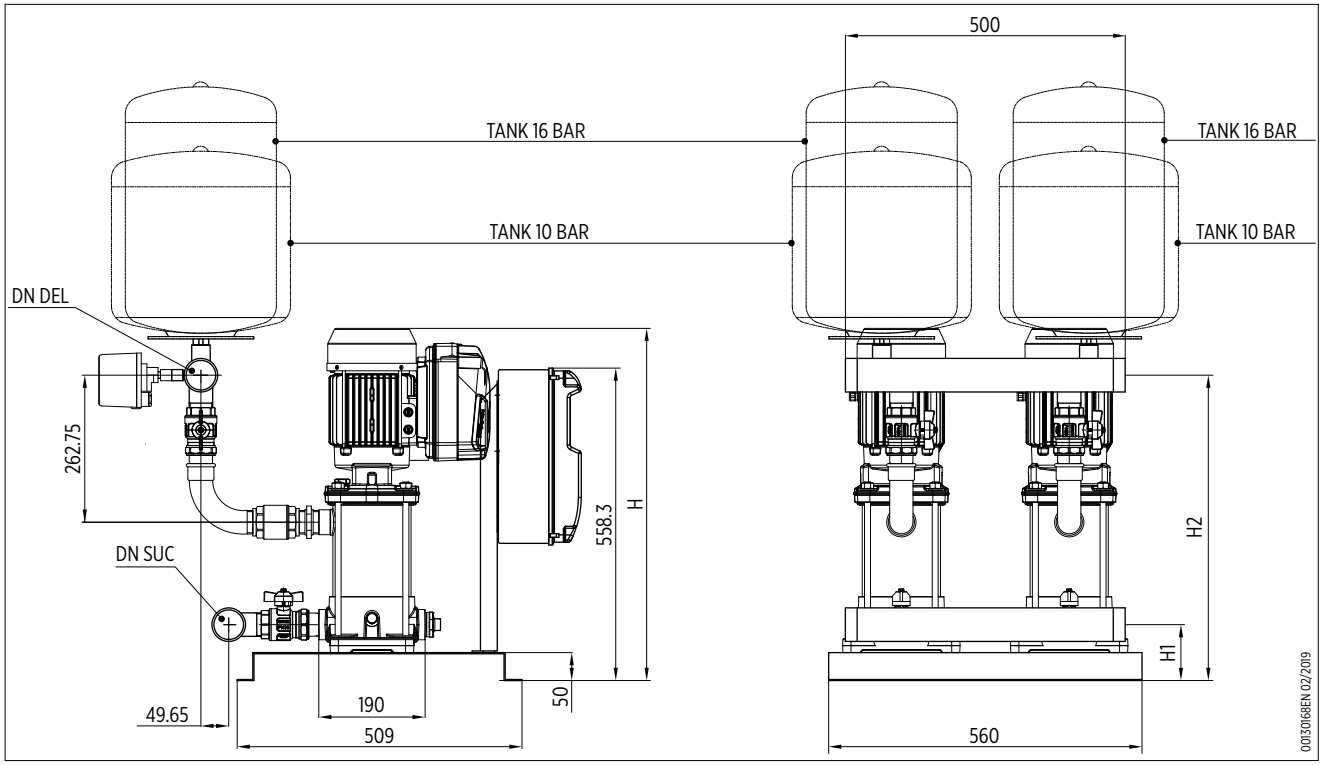
GDM02/EH DTm EH DTm 9 (SINGLE-PHASE VERSION)



Model	Dimensions * [mm]			Manifolds		Weight [Kg]
	A	F	I	DN ASP	DN MAN	
GDM02VM/EH9/03I022T6/DTm	479.5	648.5	300.5	G 2" ½	G 2"	62

*Dimensional tolerance ± 30 mm

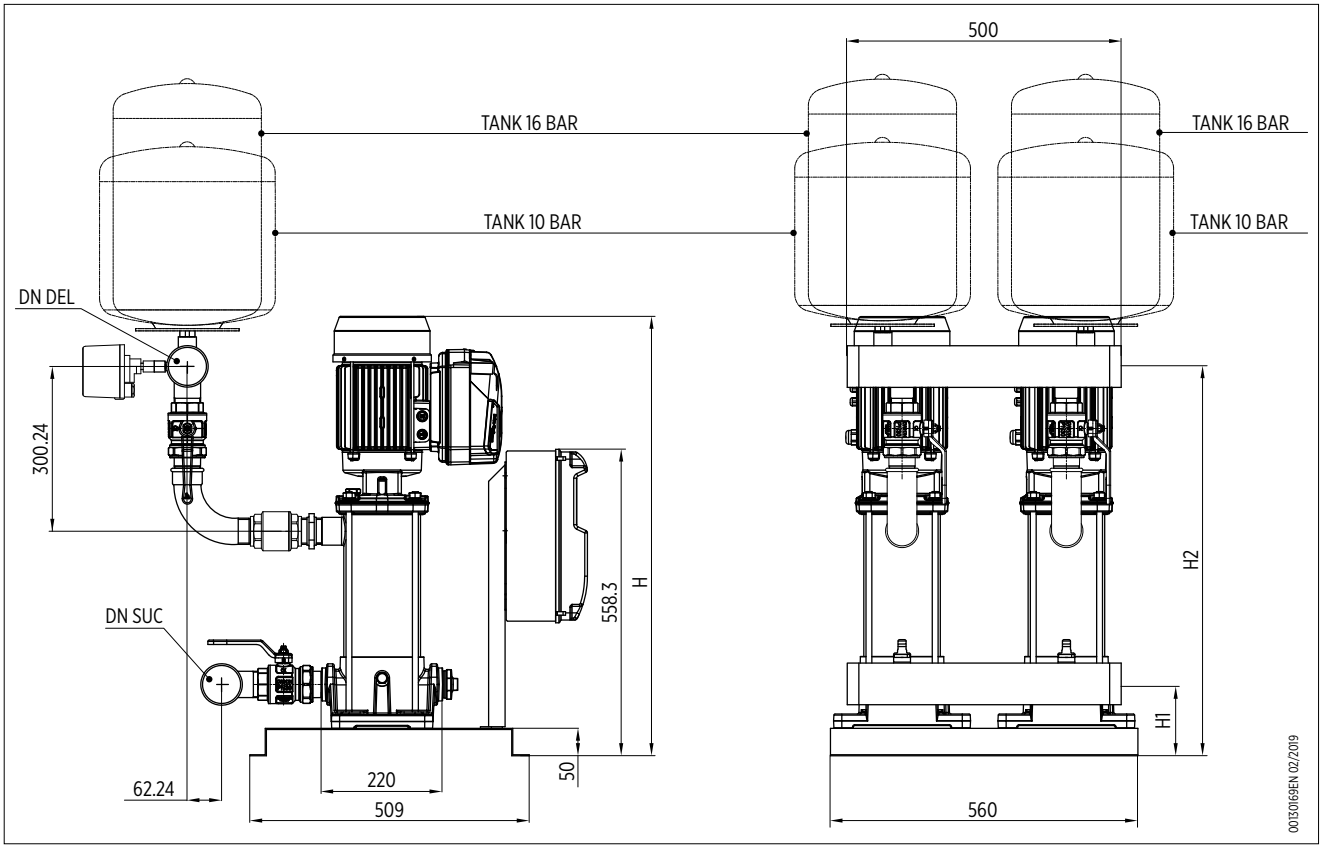
GDM02/EM DTm 3-5 (SINGLE-PHASE VERSION)



Model	Dimensions * [mm]			Manifolds		Weight [Kg]
	H	H1	H2 (Vers. R)	DN ASP	DN MAN	
GDM02VM/EM3/03RG007T6/DTm	515.5	100	473.75	G 2"	G 2"	60
GDM02VM/EM3/05RG015T6/DTm	605.5	100	521.75			62
GDM02VM/EM3/07RG022T6/DTm	692.5	100	569.75			70
GDM02VM/EM5/03RG011T6/DTm	515.5	100	473.75	G 2"	G 2"	70
GDM02VM/EM5/05RG022T6/DTm	644.5	100	521.75			75

*Dimensional tolerance ± 30 mm

GDM02/EM DTm 9 (SINGLE-PHASE VERSION)

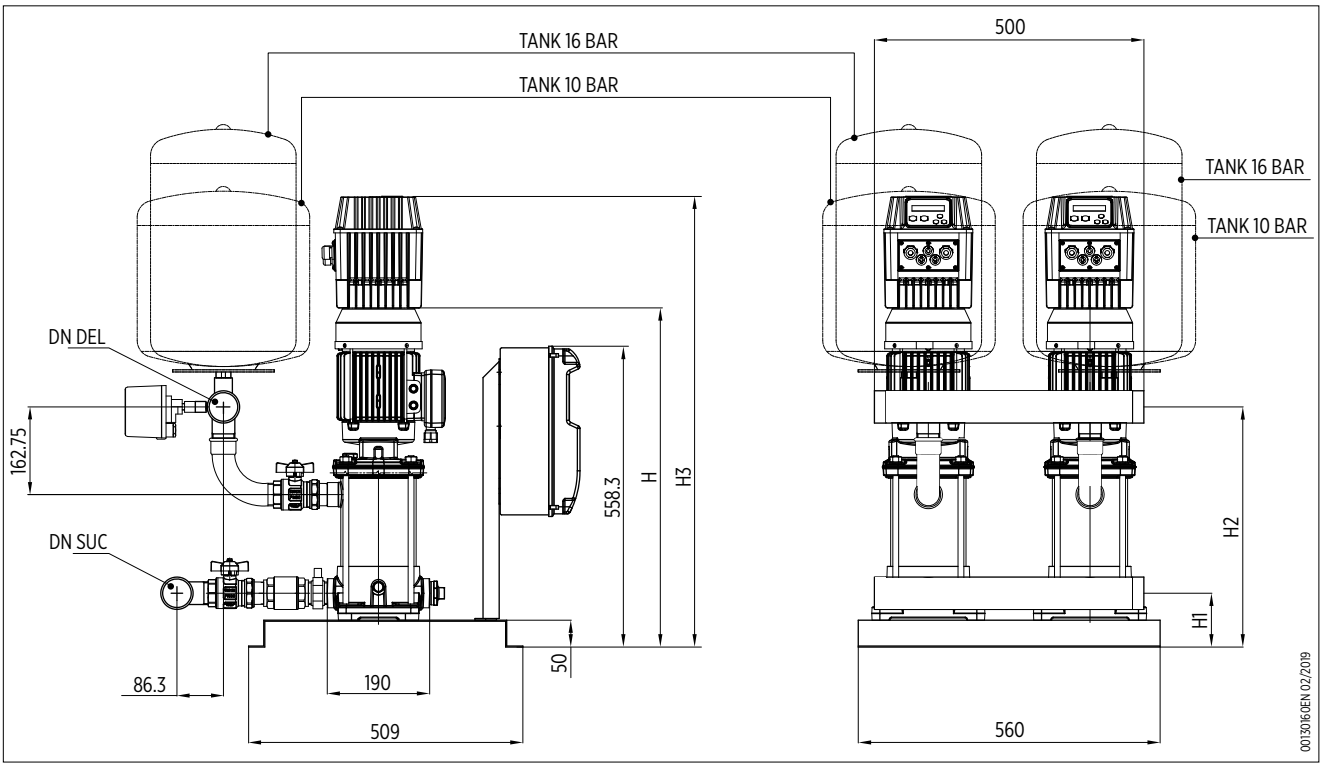


Model	Dimensions * [mm]			Manifolds		Weight [Kg]
	H	H1	H2 (Vers. R)	DN ASP	DN MAN	
GDM02VM/EM9/03RG022T6/DTm	644	130	559.24	G 2" ½	G 2" ½	72

*Dimensional tolerance ± 30 mm

GDM02/EM SERIES - DELIVERY CHECK VALVE (VM)

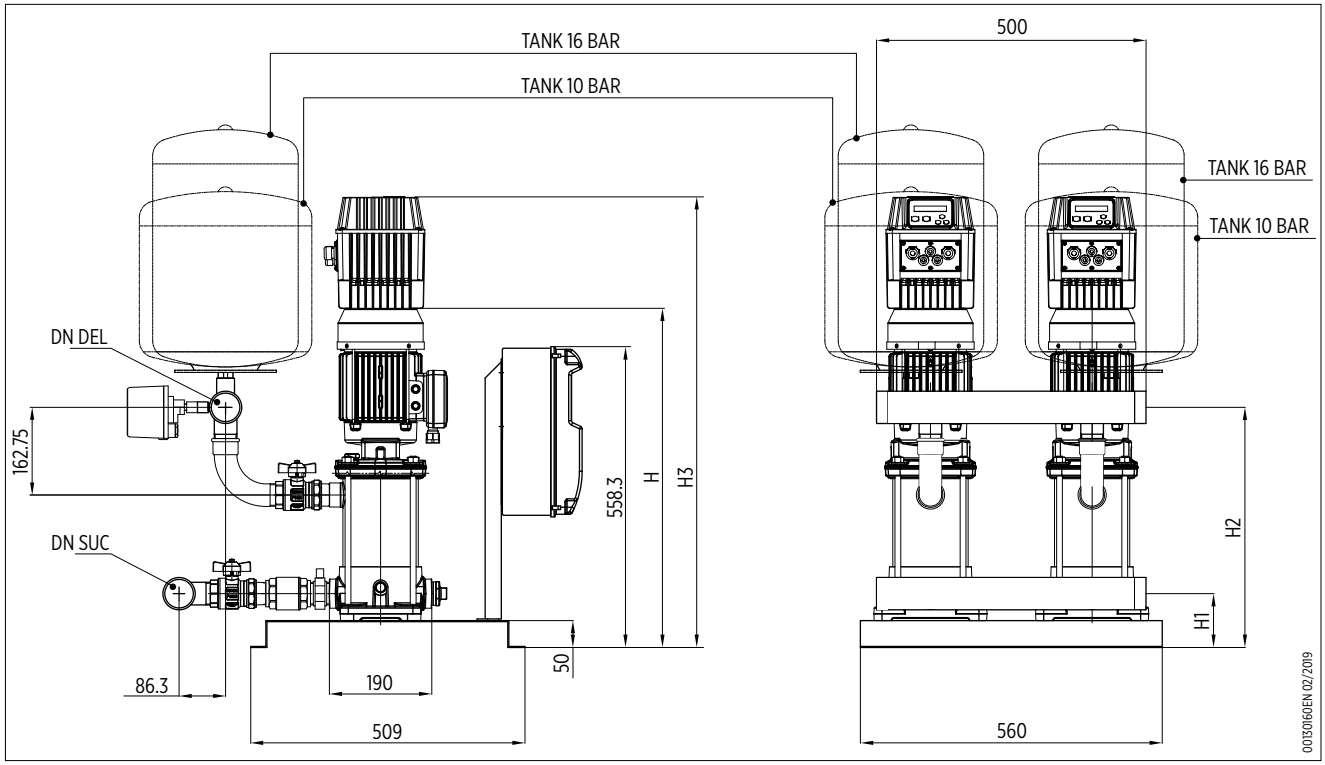
GDM02/EM 3-5 (SINGLE-PHASE VERSION)



Model	Dimensions * [mm]				Manifolds		Weight [Kg]
	H	H1	H2 (vers. R)	H3	DN ASP	DN MAN	
GDM02/EM3/03RG007T5	515.5	100	473.75	743	G 2"	G 2"	79
GDM02/EM3/04RG007T5	539.5	100	497.75	767			83
GDM02/EM3/05RG007T5	563.5	100	521.75	791			86
GDM02/EM3/06RG011T5	587.5	100	545.75	815			93
GDM02/EM3/07RG011T5	611.5	100	569.75	839			93
GDM02/EM3/08RG015T5	677.5	100	593.75	905			97
GDM02/EM3/09RG015T5	701.5	100	617.75	929			107
GDM02/EM5/03RG007T5	515.5	100	473.75	743	G 2"	G 2"	87
GDM02/EM5/04RG011T5	539.5	100	497.75	767			92
GDM02/EM5/05RG011T5	563.5	100	521.75	791			95
GDM02/EM5/06RG015T5	629.5	100	545.75	857			100
GDM02/EM5/07RG015T5	653.5	100	569.75	881			120
GDM02/EM5/08RG022T5	716.5	100	593.75	944			125

*Dimensional tolerance ± 30 mm

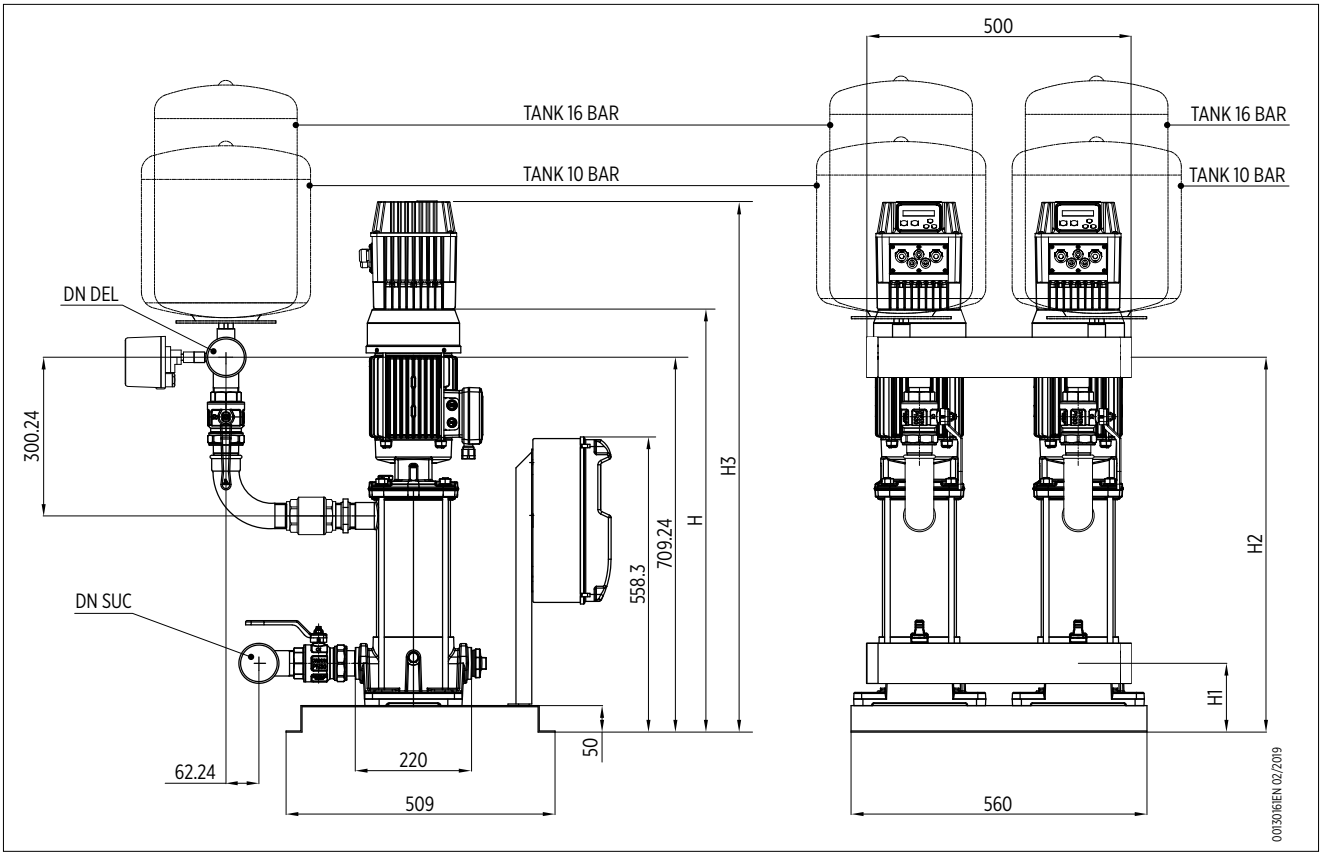
GDT02/EM 3-5 (THREE-PHASE VERSION)



Model	Dimensions * [mm]				Manifolds		Weight [Kg]
	H	H1	H2 (vers. R)	H3	DN ASP	DN MAN	
GDT02/EM3/03RG007T5	515.5	100	473.75	743	G 2"	G 2"	79
GDT02/EM3/04RG007T5	539.5	100	497.75	767			83
GDT02/EM3/05RG007T5	563.5	100	521.75	791			86
GDT02/EM3/06RG011T5	587.5	100	545.75	815			93
GDT02/EM3/07RG011T5	611.5	100	569.75	839			93
GDT02/EM3/08RG015T5	677.5	100	593.75	905			97
GDT02/EM3/09RG015T5	701.5	100	617.75	929			107
GDT02/EM5/03RG007T5	515.5	100	473.75	743	G 2"	G 2"	87
GDT02/EM5/04RG011T5	539.5	100	497.75	767			92
GDT02/EM5/05RG011T5	563.5	100	521.75	791			95
GDT02/EM5/06RG015T5	629.5	100	545.75	857			100
GDT02/EM5/07RG015T5	653.5	100	569.75	881			120
GDT02/EM5/08RG022T5	716.5	100	593.75	944			125

*Dimensional tolerance ± 30 mm

GD...02/EM 9



GDM02/EM 9 (SINGLE-PHASE VERSION)

Model	Dimensions * [mm]				Manifolds		Weight [Kg]
	H	H1	H2 (vers. R)	H3	DN ASP	DN MAN	
GDM02/EM9/03RG011M5	563.5	130	559.24	791	G 2" ½	G 2" ½	97
GDM02/EM9/04RG015M5	635.5	130	589.24	863			100

*Dimensional tolerance ± 30 mm

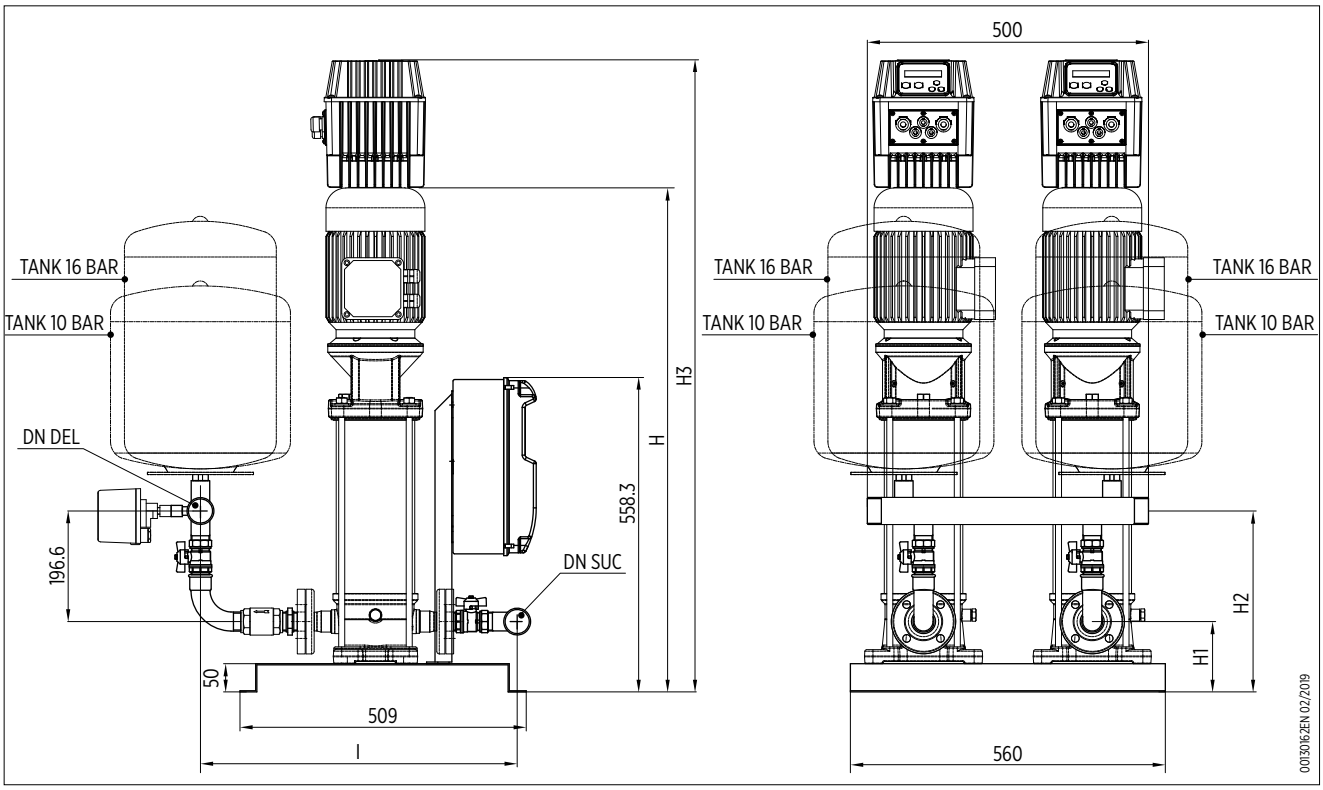
GDT02/EM 9 (THREE-PHASE VERSION)

Model	Dimensions * [mm]				Manifolds		Weight [Kg]
	H	H1	H2 (vers. R)	H3	DN ASP	DN MAN	
GDT02/EM9/03RG011M5	563.5	130	559.24	791	G 2" ½	G 2" ½	97
GDT02/EM9/04RG015M5	635.5	130	589.24	863			100

*Dimensional tolerance ± 30 mm

GD...02/EV SERIES - DELIVERY CHECK VALVE (VM)

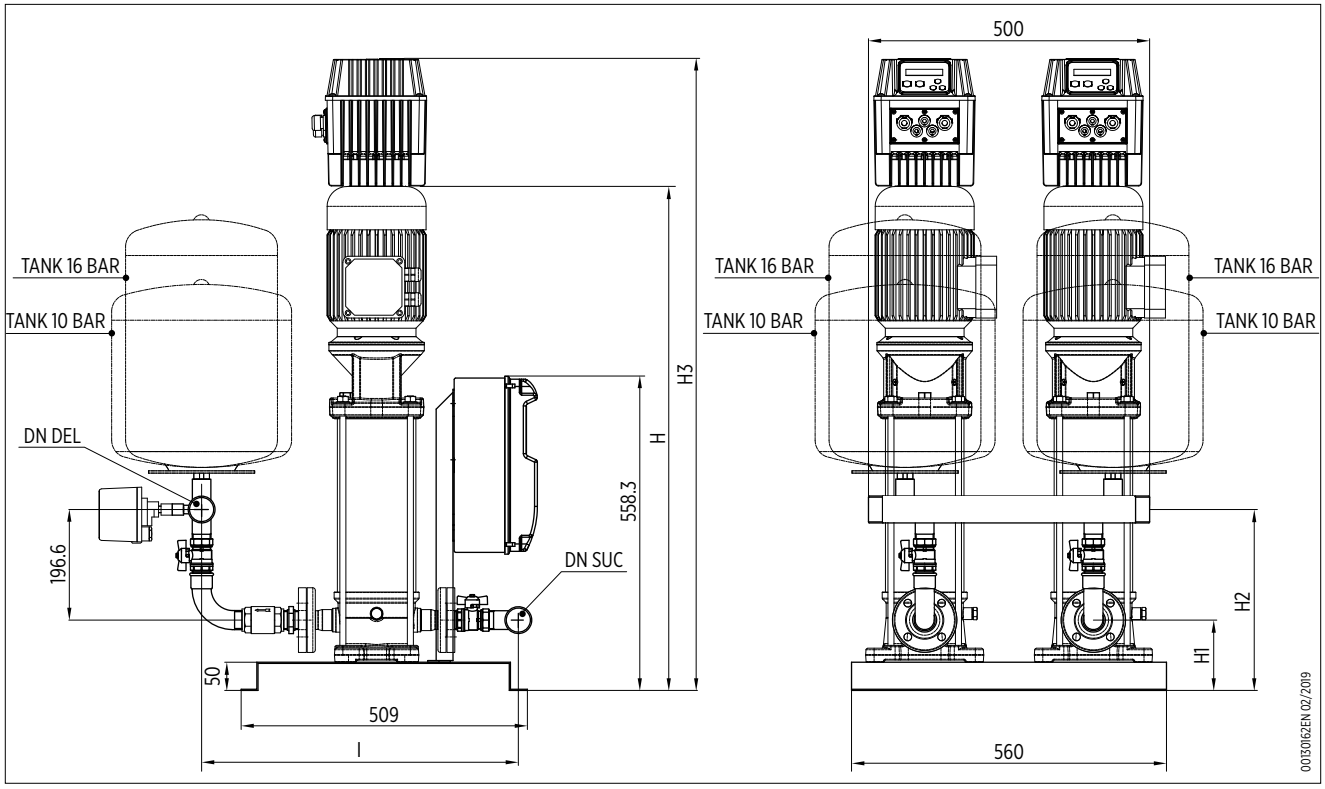
GDM02/EV 3 (SINGLE-PHASE) VERSION



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDM02VM/EV3/07FI007T	708	125	321.6	935.5	563.12	G 1" ½	G 1" ½	84
GDM02VM/EV3/08FI007T	730	125	321.6	957.5	563.12			92
GDM02VM/EV3/09FI007T	753	125	321.6	980.5	563.12			94
GDM02VM/EV3/10FI011T	775	125	321.6	1002.5	563.12			95
GDM02VM/EV3/11FI011T	798	125	321.6	1025.5	563.12			98
GDM02VM/EV3/12FI011T	820	125	321.6	1047.5	563.12			100
GDM02VM/EV3/13FI011T	843	125	321.6	1070.5	563.12			103
GDM02VM/EV3/14FI015T	910	125	321.6	1137.5	563.12			106
GDM02VM/EV3/15FI015T	933	125	321.6	1160.5	563.12			107
GDM02VM/EV3/16FI015T	955	125	321.6	1182.5	563.12			109
GDM02VM/EV3/17FI015T	978	125	321.6	1205.5	563.12			110
GDM02VM/EV3/18FI022T	1000	125	321.6	1227.5	563.12			115
GDM02VM/EV3/19FI022T	1023	125	321.6	1250.5	563.12			116
GDM02VM/EV3/21FI022T	1068	125	321.6	1295.5	563.12			117

*Dimensional tolerance ± 30 mm

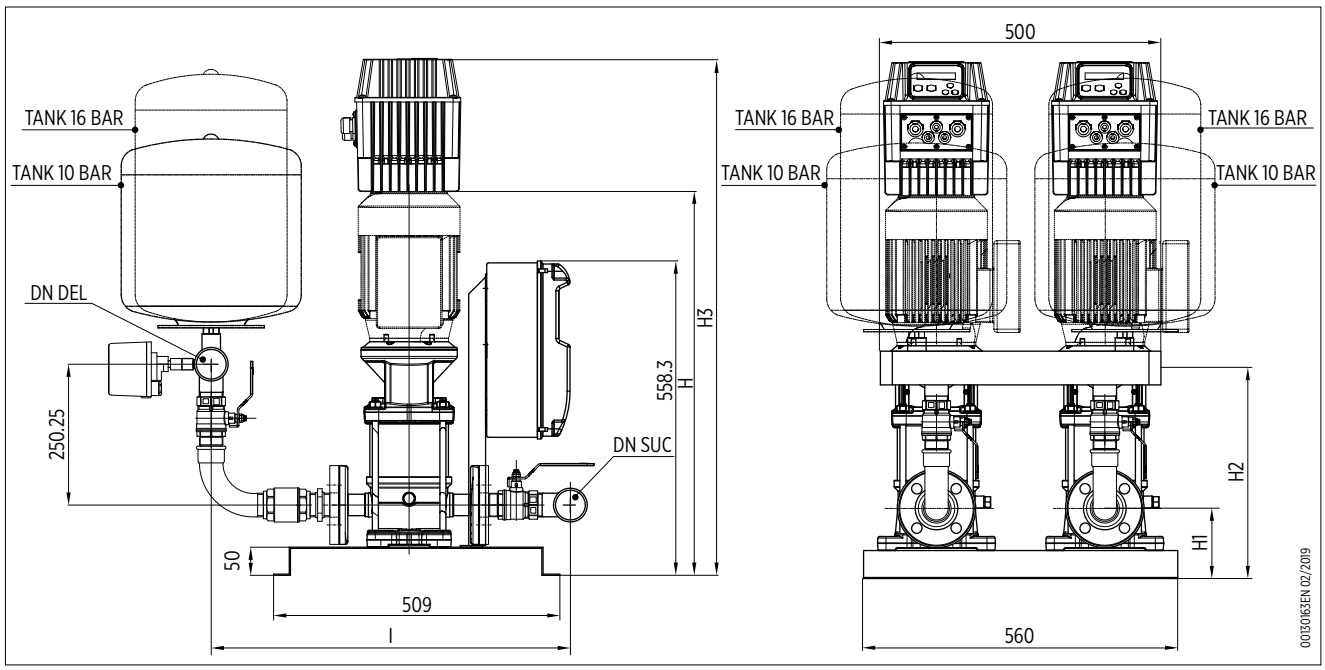
GDT02/EV 3 (SINGLE-PHASE) VERSION)



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDT02/EV3/07FI007T	708	125	321.6	935.5	563.12	G 1" ½	G 1" ½	88
GDT02/EV3/08FI007T	730	125	321.6	957.5	563.12			90
GDT02/EV3/09FI007T	753	125	321.6	980.5	563.12			92
GDT02/EV3/10FI011T	775	125	321.6	1002.5	563.12			95
GDT02/EV3/11FI011T	798	125	321.6	1025.5	563.12			98
GDT02/EV3/12FI011T	820	125	321.6	1047.5	563.12			100
GDT02/EV3/13FI011T	843	125	321.6	1070.5	563.12			103
GDT02/EV3/14FI015T	910	125	321.6	1137.5	563.12			106
GDT02/EV3/15FI015T	933	125	321.6	1160.5	563.12			107
GDT02/EV3/16FI015T	955	125	321.6	1182.5	563.12			109
GDT02/EV3/17FI015T	978	125	321.6	1205.5	563.12			110
GDT02/EV3/18FI022T	1000	125	321.6	1227.5	563.12	G 1" ½	G 1" ½	115
GDT02/EV3/19FI022T	1023	125	321.6	1250.5	563.12			116
GDT02/EV3/21FI022T	1068	125	321.6	1295.5	563.12			117

*Dimensional tolerance ± 30 mm

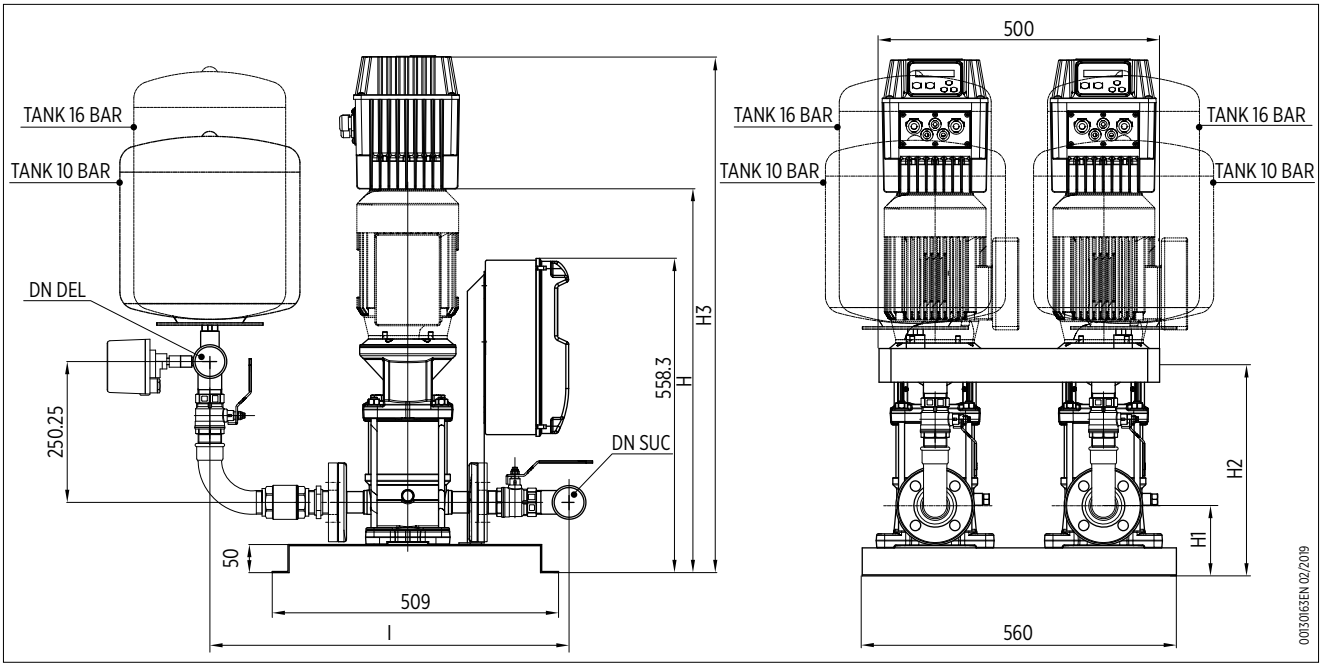
GDM02/EV 6 (SINGLE-PHASE VERSION)



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDM02VM/EV6/05FI007T	680	125	375.25	907.5	638.15	G 2"	G 2"	88
GDM02VM/EV6/06FI007T	706	125	375.25	933.5	638.15			90
GDM02VM/EV6/07FI011T	732	125	375.25	959.5	638.15			93
GDM02VM/EV6/08FI011T	758	125	375.25	985.5	638.15			96
GDM02VM/EV6/09FI011T	784	125	375.25	1011.5	638.15			98
GDM02VM/EV6/10FI015T	855	125	375.25	1082.5	638.15			100
GDM02VM/EV6/11FI015T	881	125	375.25	1108.5	638.15			102
GDM02VM/EV6/12FI015T	907	125	375.25	1134.5	638.15			105
GDM02VM/EV6/13FI015T	933	125	375.25	1160.5	638.15			106
GDM02VM/EV6/14FI022T	959	125	375.25	1186.5	638.15			110
GDM02VM/EV6/15FI022T	985	125	375.25	1212.5	638.15			111
GDM02VM/EV6/16FI022T	1011	125	375.25	1238.5	638.15			112
GDM02VM/EV6/17FI022T	1037	125	375.25	1264.5	638.15			115
GDM02VM/EV6/18FI022T	1063	125	375.25	1290.5	638.15			118
GDM02VM/EV6/19FI022T	1089	125	375.25	1316.5	638.15			120

*Dimensional tolerance ± 30 mm

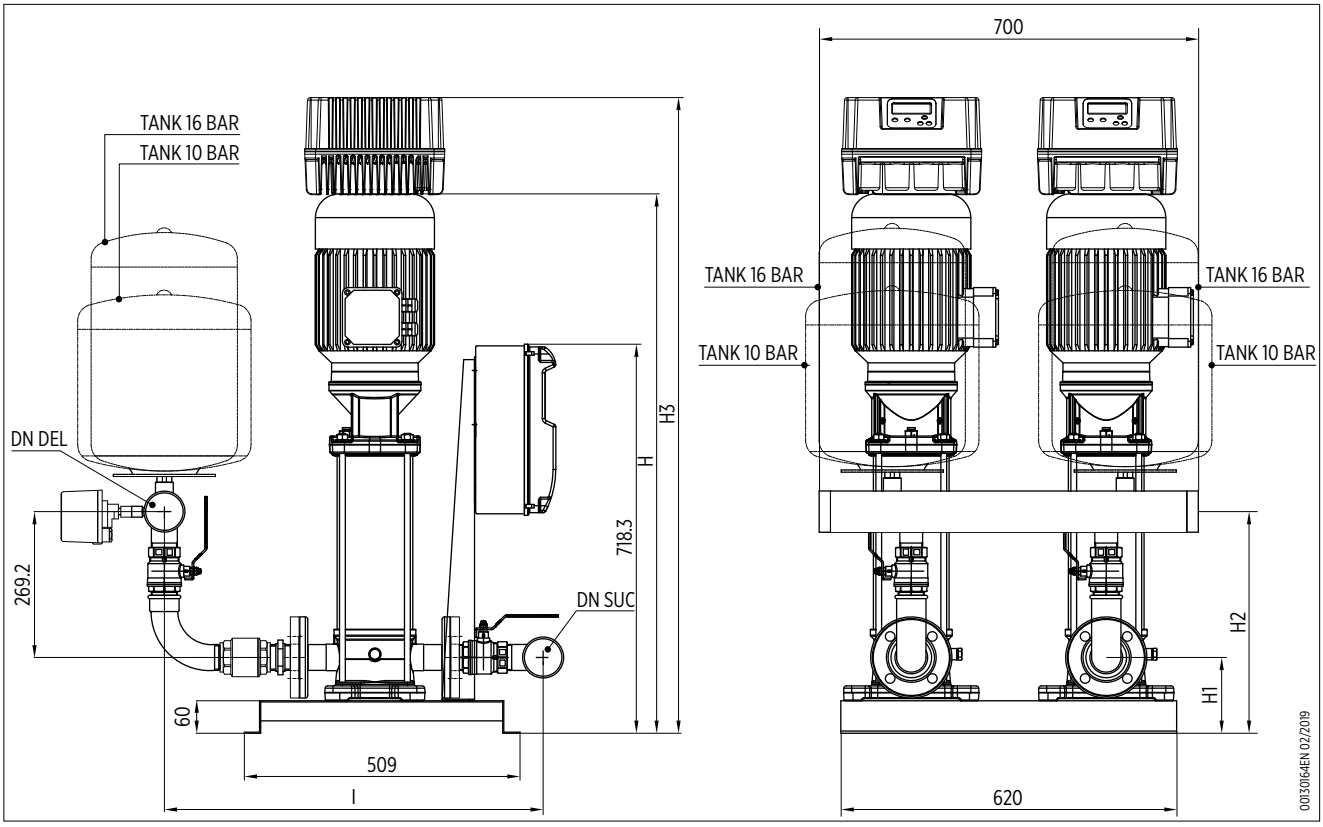
GDT02/EV 6 (THREE-PHASE VERSION)



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDT02/EV6/05FI007T	680	125	375.25	907.5	638.45	G 2"	G 2"	88
GDT02/EV6/06FI007T	706	125	375.25	933.5	638.45			90
GDT02/EV6/07FI011T	732	125	375.25	959.5	638.45			93
GDT02/EV6/08FI011T	758	125	375.25	985.5	638.45			96
GDT02/EV6/09FI011T	784	125	375.25	1011.5	638.45			98
GDT02/EV6/10FI015T	855	125	375.25	1082.5	638.45			100
GDT02/EV6/11FI015T	881	125	375.25	1108.5	638.45			102
GDT02/EV6/12FI015T	907	125	375.25	1134.5	638.45			105
GDT02/EV6/13FI015T	933	125	375.25	1160.5	638.45			106
GDT02/EV6/14FI022T	959	125	375.25	1186.5	638.45			110
GDT02/EV6/15FI022T	985	125	375.25	1212.5	638.45			111
GDT02/EV6/16FI022T	1011	125	375.25	1238.5	638.45			112
GDT02/EV6/17FI022T	1037	125	375.25	1264.5	638.45			115
GDT02/EV6/18FI022T	1063	125	375.25	1290.5	638.45			118
GDT02/EV6/19FI022T	1089	125	375.25	1316.5	638.45			120
GDT02/EV6/20FI030T	1164	125	375.25	1391.5	638.45			121
GDT02/EV6/21FI030T	1190	125	375.25	1417.5	638.45			125

*Dimensional tolerance ± 30 mm

GD...02/EV 10



GDM02/EV 10 (SINGLE-PHASE VERSION)

Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDM02VM/EV10/03FI011T	663	140	409	890.5	700	G 2" ½	G 2" ½	97
GDM02VM/EV10/04FI015T	738	140	409	965.5	700			104
GDM02VM/EV10/05FI015T	768	140	409	995.5	700			110
GDM02VM/EV10/06FI022T	798	140	409	1025.5	700			112
GDM02VM/EV10/07FI022T	828	140	409	1055.5	700			114

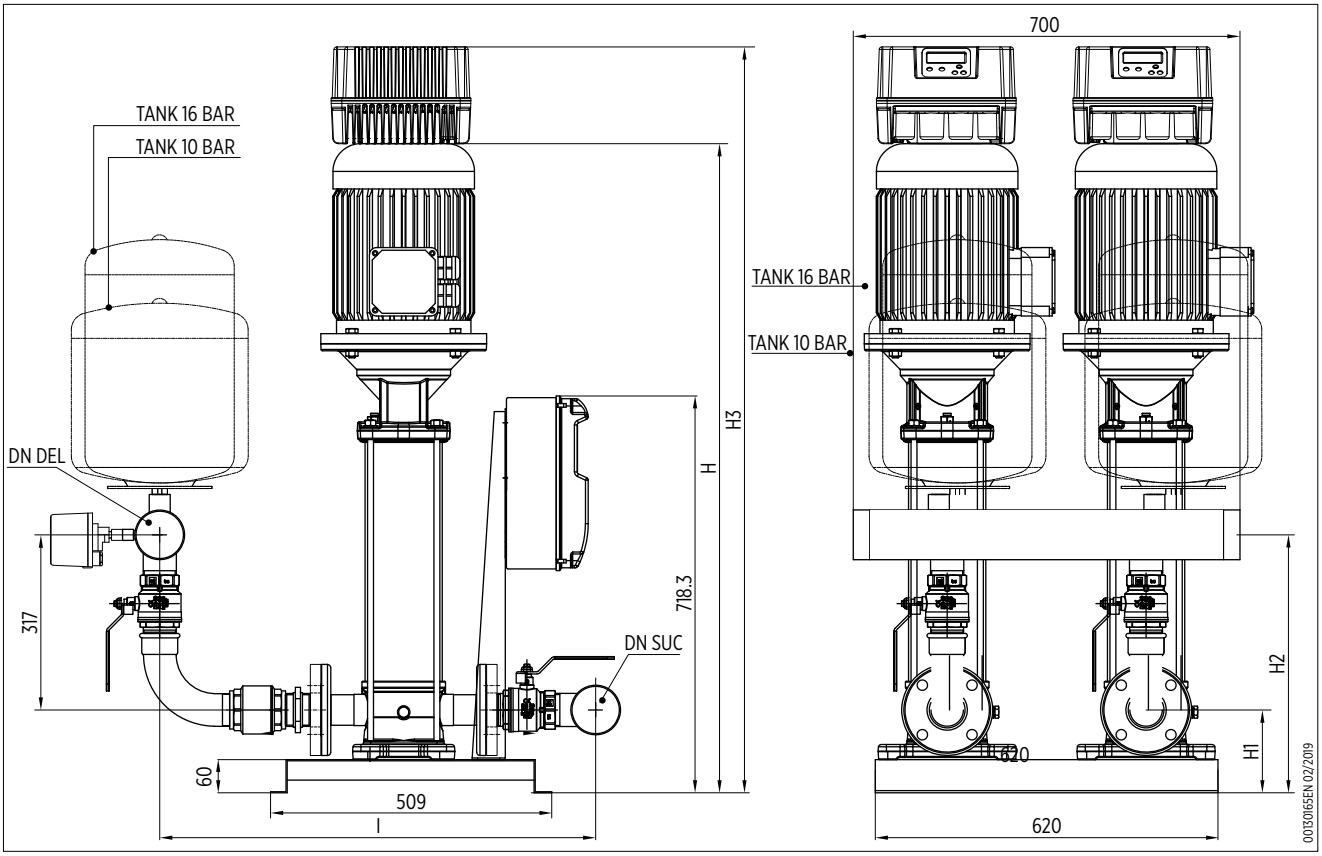
*Dimensional tolerance ± 30 mm

GDT02/EV 10 (THREE-PHASE VERSION)

Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDT02/EV10/03FI011T	663	140	409	890.5	700	G 2" ½	G 2" ½	97
GDT02/EV10/04FI015T	738	140	409	965.5	700			104
GDT02/EV10/05FI015T	768	140	409	995.5	700			110
GDT02/EV10/06FI022T	798	140	409	1025.5	700			112
GDT02/EV10/07FI022T	828	140	409	1055.5	700			114
GDT02/EV10/08FI030T	907	140	409	1134.5	700			120
GDT02/EV10/09FI030T	937	140	409	1164.5	700			122
GDT02/EV10/10FI040T	967	140	409	1194.5	700			150
GDT02/EV10/11FI040T	997	140	409	1224.5	700			152
GDT02/EV10/12FI040T	1027	140	409	1254.5	700			153
GDT02/EV10/13FI040T	1057	140	409	1284.5	700			155
GDT02/EV10/15FI055T	1314	140	409	1494	700			212

*Dimensional tolerance ± 30 mm

GDT02/EV 15 -20 (THREE-PHASE VERSION)

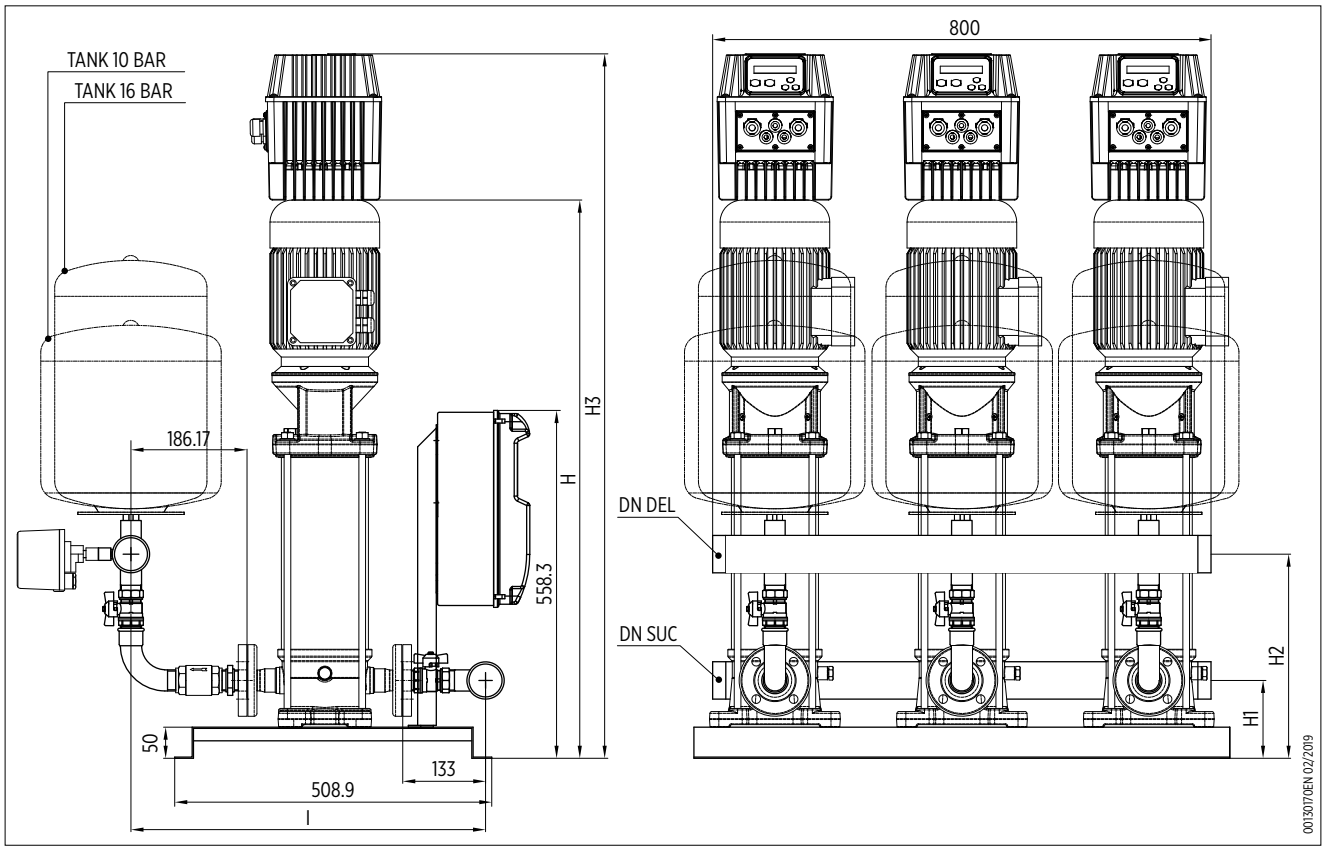


Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDT02/EV15/03FI030T	835	150	467	1062.5	790	G 3"	G 3"	135
GDT02/EV15/04FI040T	883	150	467	1110.5	790			150
GDT02/EV15/05FI040T	931	150	467	1158.5	790			185
GDT02/EV15/06FI055T	1188	150	467	1368	790			195
GDT02/EV15/07FI055T	1236	150	467	1416	790			211
GDT02/EV15/08FI075T	1306	150	467	1486	790			225
GDT02/EV15/09FI075T	1354	150	467	1534	790			255
GDT02/EV15/10FI110T	1497	150	467	1677	790			260
GDT02/EV20/03FI030T	835	150	467	1062.5	790	G 3"	G 3"	135
GDT02/EV20/04FI040T	883	150	467	1110.5	790			150
GDT02/EV20/05FI055T	1140	150	467	1320	790			185
GDT02/EV20/06FI075T	1210	150	467	1390	790			205
GDT02/EV20/07FI075T	1258	150	467	1438	790			225
GDT02/EV20/08FI110T	1401	150	467	1580	790			250
GDT02/EV20/09FI110T	1449	150	467	1629	790			260
GDT02/EV20/10FI110T	1497	150	467	1677	790			270

*Dimensional tolerance ± 30 mm

GD...03/EV SERIES - DELIVERY CHECK VALVE (VM)

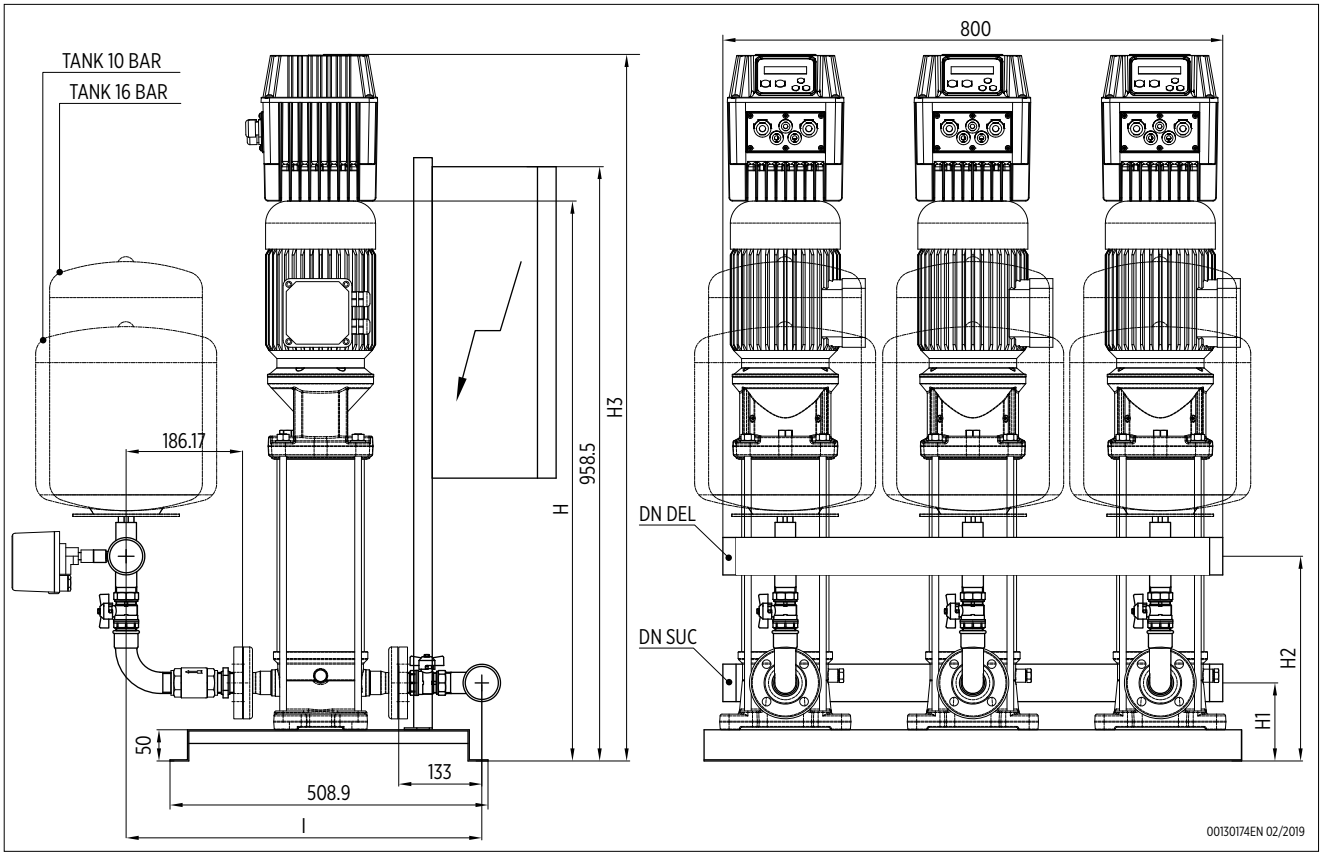
GDM03/EV 3 (SINGLE-PHASE VERSION)



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDM03VM/EV3/07FI007T	708	125	327.7	935.5	569.17	G 2"	G 2"	145
GDM03VM/EV3/08FI007T	730	125	327.7	957.5	569.17			159
GDM03VM/EV3/09FI007T	753	125	327.7	980.5	569.17			162
GDM03VM/EV3/10FI011T	775	125	327.7	1002.5	569.17			164
GDM03VM/EV3/11FI011T	798	125	327.7	1025.5	569.17			169
GDM03VM/EV3/12FI011T	820	125	327.7	1047.5	569.17			173
GDM03VM/EV3/13FI011T	843	125	327.7	1070.5	569.17			178
GDM03VM/EV3/14FI015T	910	125	327.7	1137.5	569.17			183
GDM03VM/EV3/15FI015T	933	125	327.7	1160.5	569.17			185
GDM03VM/EV3/16FI015T	955	125	327.7	1182.5	569.17			188
GDM03VM/EV3/17FI015T	978	125	327.7	1205.5	569.17			190
GDM03VM/EV3/18FI022T	1000	125	327.7	1227.5	569.17			198
GDM03VM/EV3/19FI022T	1023	125	327.7	1250.5	569.17			200
GDM03VM/EV3/21FI022T	1068	125	327.7	1295.5	569.17			202

*Dimensional tolerance ± 30 mm

GDT03/EV 3 (THREE-PHASE VERSION)

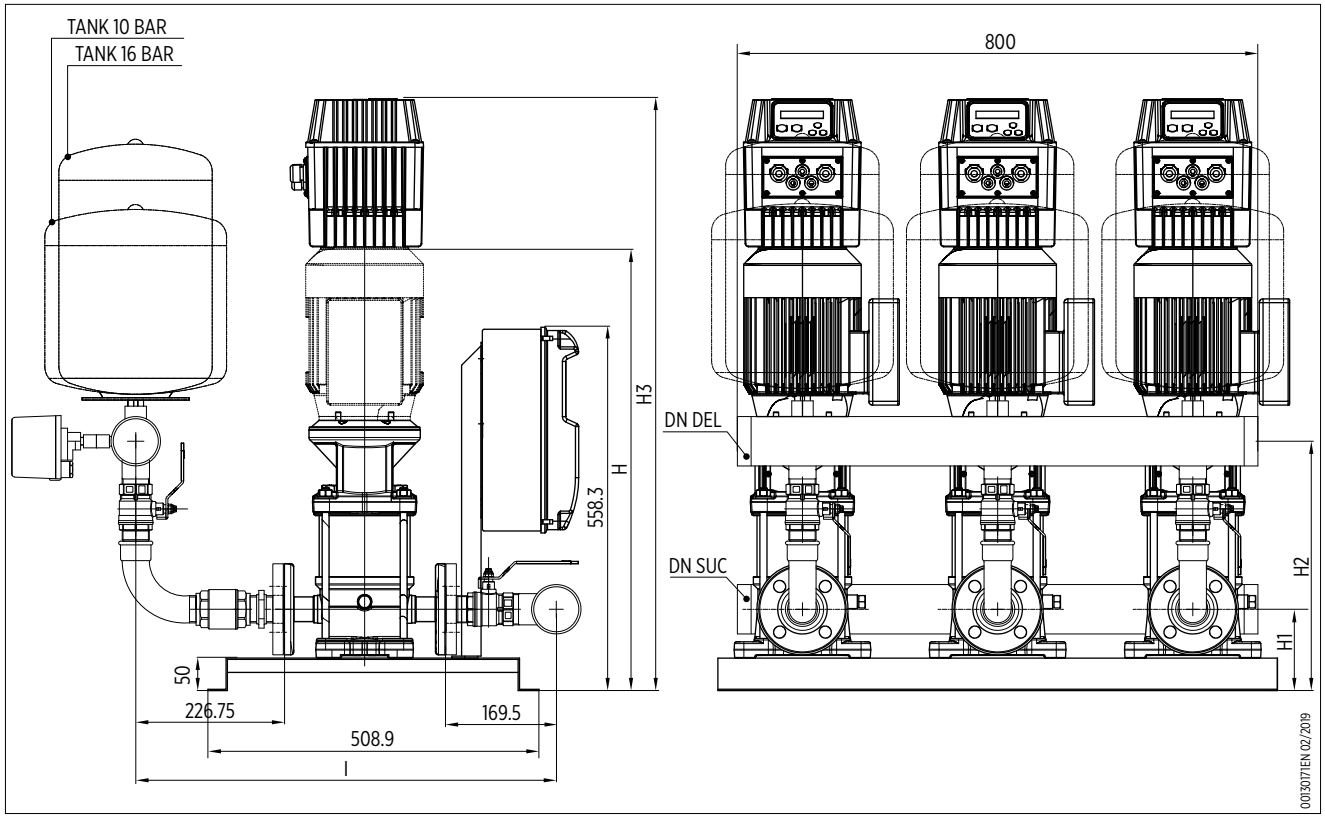


Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDT03/EV3/07FI007T	708	125	327.7	935.5	569.17	G 2" ½	G 2" ½	152
GDT03/EV3/08FI007T	730	125	327.7	957.5	569.17			155
GDT03/EV3/09FI007T	753	125	327.7	980.5	569.17			159
GDT03VM/EV3/10FI011T	775	125	327.7	1002.5	569.17			164
GDT03VM/EV3/11FI011T	798	125	327.7	1025.5	569.17			169
GDT03VM/EV3/12FI011T	820	125	327.7	1047.5	569.17			173
GDT03VM/EV3/13FI011T	843	125	327.7	1070.5	569.17			178
GDT03VM/EV3/14FI015T	910	125	327.7	1137.5	569.17			183
GDT03VM/EV3/15FI015T	933	125	327.7	1160.5	569.17			185
GDT03VM/EV3/16FI015T	955	125	327.7	1182.5	569.17			188
GDT03VM/EV3/17FI015T	978	125	327.7	1205.5	569.17			190
GDT03VM/EV3/18FI022T	1000	125	327.7	1227.5	569.17			198
GDT03VM/EV3/19FI022T	1023	125	327.7	1250.5	569.17			200
GDT03VM/EV3/21FI022T	1068	125	327.7	1295.5	569.17			202

*Dimensional tolerance ± 30 mm

E-Tech

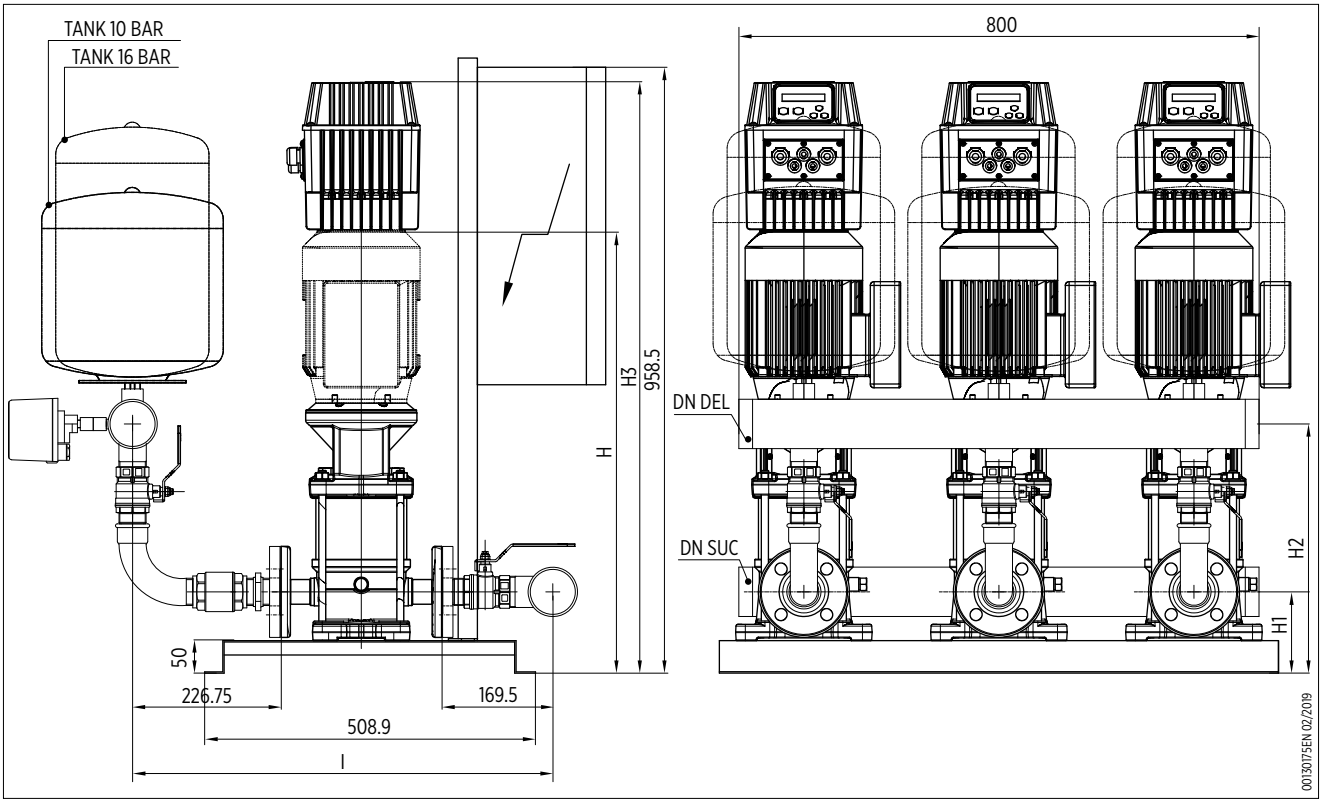
GDM03/EV 6 (SINGLE-PHASE VERSION)



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDM03VM/EV6/05FI007T	680	125	383.3	907.5	646.25	G 2" ½	G 2" ½	152
GDM03VM/EV6/06FI007T	706	125	383.3	933.5	646.25			155
GDM03VM/EV6/07FI011T	732	125	383.3	959.5	646.25			160
GDM03VM/EV6/08FI011T	758	125	383.3	985.5	646.25			166
GDM03VM/EV6/09FI011T	784	125	383.3	1011.5	646.25			169
GDM03VM/EV6/10FI015T	855	125	383.3	1082.5	646.25			173
GDM03VM/EV6/11FI015T	881	125	383.3	1108.5	646.25			176
GDM03VM/EV6/12FI015T	907	125	383.3	1134.5	646.25			181
GDM03VM/EV6/13FI015T	933	125	383.3	1160.5	646.25			183
GDM03VM/EV6/14FI022T	959	125	383.3	1186.5	646.25			190
GDM03VM/EV6/15FI022T	985	125	383.3	1212.5	646.25			191
GDM03VM/EV6/16FI022T	1011	125	383.3	1238.5	646.25			193
GDM03VM/EV6/17FI022T	1037	125	383.3	1264.5	646.25			198
GDM03VM/EV6/18FI022T	1063	125	383.3	1290.5	646.25			204
GDM03VM/EV6/19FI022T	1089	125	383.3	1316.5	646.25			207

*Dimensional tolerance ± 30 mm

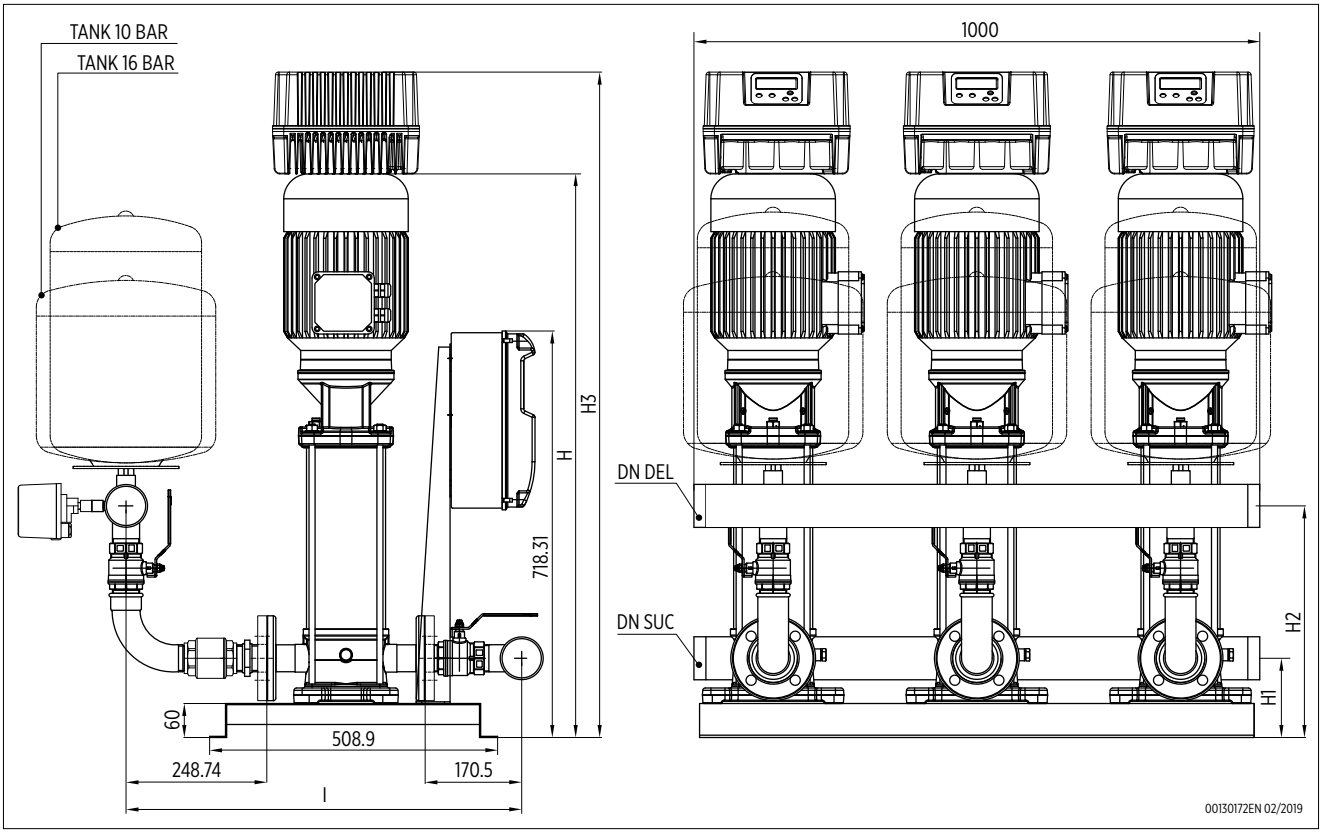
GDT03/EV 6 (THREE-PHASE VERSION)



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDT03/EV6/05FI007T	680	125	383.3	907.5	646.25	G 2" ½	G 2" ½	152
GDT03/EV6/06FI007T	706	125	383.3	933.5	646.25			155
GDT03VM/EV6/07FI011T	732	125	383.3	959.5	646.25			160
GDT03VM/EV6/08FI011T	758	125	383.3	985.5	646.25			166
GDT03VM/EV6/09FI011T	784	125	383.3	1011.5	646.25			169
GDT03VM/EV6/10FI015T	855	125	383.3	1082.5	646.25			173
GDT03VM/EV6/11FI015T	881	125	383.3	1108.5	646.25			176
GDT03VM/EV6/12FI015T	907	125	383.3	1134.5	646.25			181
GDT03VM/EV6/13FI015T	933	125	383.3	1160.5	646.25			183
GDT03VM/EV6/14FI022T	959	125	383.3	1186.5	646.25			190
GDT03VM/EV6/15FI022T	985	125	383.3	1212.5	646.25			191
GDT03VM/EV6/16FI022T	1011	125	383.3	1238.5	646.25			193
GDT03VM/EV6/17FI022T	1037	125	383.3	1264.5	646.25			198
GDT03VM/EV6/18FI022T	1063	125	383.3	1290.5	646.25			204
GDT03VM/EV6/19FI022T	1089	125	383.3	1316.5	646.25			207
GDT03VM/EV6/20FI030T	1164	125	383.3	1391.5	646.25			209
GDT03VM/EV6/21FI030T	1190	125	383.3	1417.5	646.25			216

*Dimensional tolerance ± 30 mm

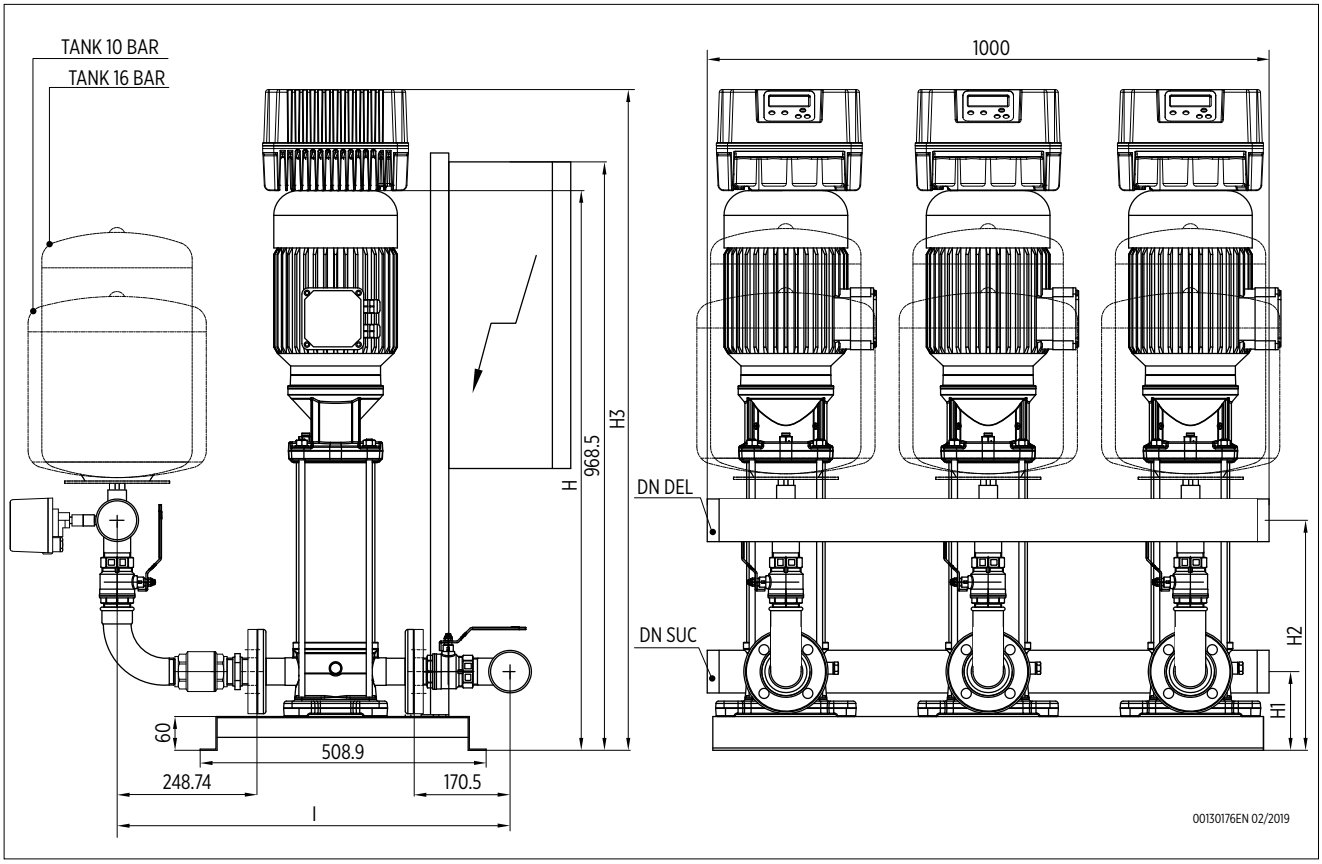
GDM03/EV 10 (SINGLE-PHASE VERSION)



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDM03VM/EV10/03FI011T	663	140	409.2	890.5	699.24	G 2" ½	G 2" ½	167
GDM03VM/EV10/04FI015T	738	140	409.2	965.5	699.24			179
GDM03VM/EV10/05FI015T	768	140	409.2	995.5	699.24			190
GDM03VM/EV10/06FI022T	798	140	409.2	1025.5	699.24			193
GDM03VM/EV10/07FI022T	828	140	409.2	1055.5	699.24			197

*Dimensional tolerance ± 30 mm

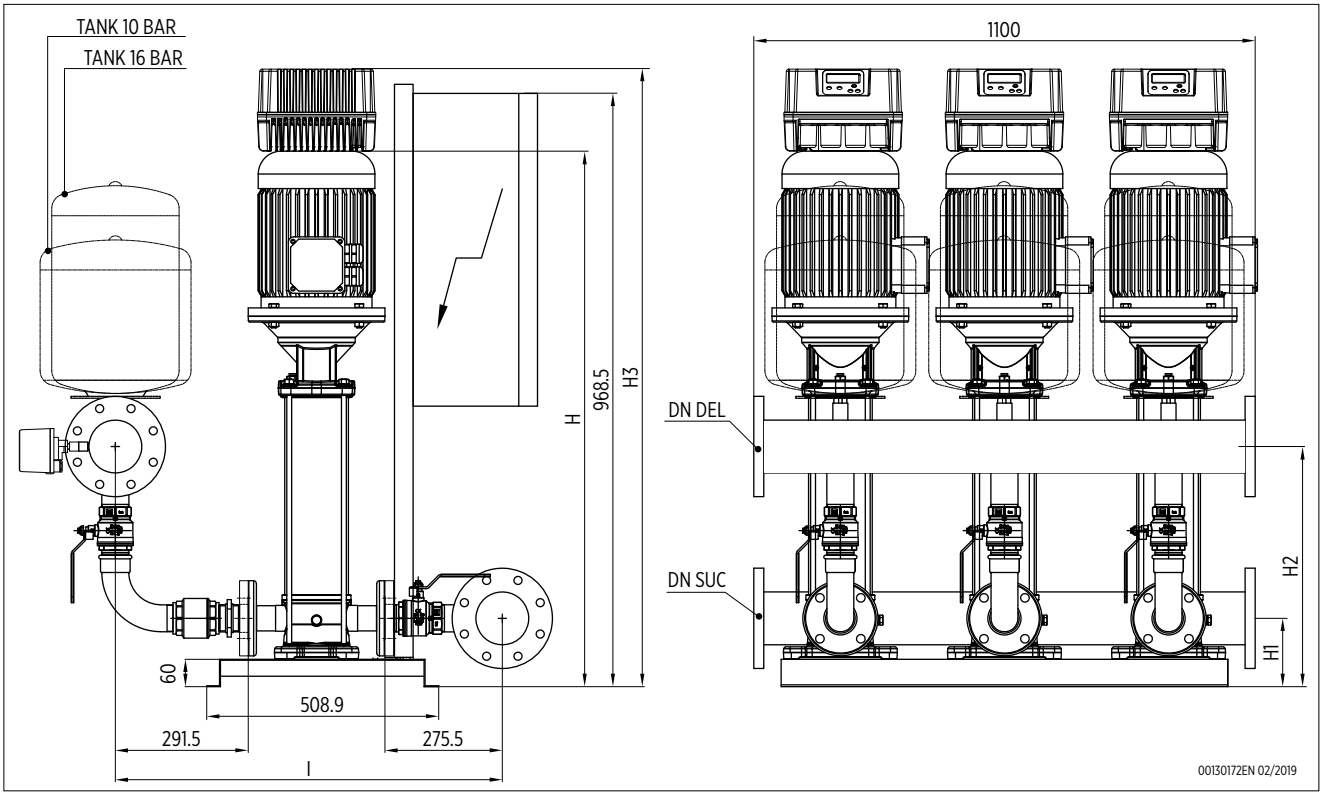
GDT03/EV 10 (THREE-PHASE VERSION)



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDT03VM/EV10/03FI011T	663	140	409.2	890.5	699.24	G 2" ½	G 2" ½	167
GDT03VM/EV10/04FI015T	738	140	409.2	965.5	699.24			179
GDT03VM/EV10/05FI015T	768	140	409.2	995.5	699.24			190
GDT03VM/EV10/06FI022T	798	140	409.2	1025.5	699.24			193
GDT03VM/EV10/07FI022T	828	140	409.2	1055.5	699.24			197
GDT03VM/EV10/08FI030T	907	140	409.2	1134.5	699.24			207
GDT03VM/EV10/09FI030T	937	140	409.2	1164.5	699.24			210
GDT03VM/EV10/10FI040T	967	140	409.2	1194.5	699.24			259
GDT03VM/EV10/11FI040T	997	140	409.2	1224.5	699.24			262
GDT03VM/EV10/12FI040T	1027	140	409.2	1254.5	699.24			264
GDT03VM/EV10/13FI040T	1057	140	409.2	1284.5	699.24			267
GDT03VM/EV10/15FI055T	1314	140	409.2	1494	699.24			366

*Dimensional tolerance ± 30 mm

GDT03/EV 15 -20 (THREE-PHASE VERSION)



Model	Dimensions * [mm]					Manifolds		Weight [Kg]
	H	H1	H2	H3	I	DN ASP	DN MAN	
GDT03VM/EV15/03FI030T	835	150	527	1062.5	849	DN100	DN100	932
GDT03VM/EV15/04FI040T	883	150	527	1110.5	849			1035
GDT03VM/EV15/05FI040T	931	150	527	1158.5	849			1277
GDT03VM/EV15/06FI055T	1188	150	527	1368	849			1346
GDT03VM/EV15/07FI055T	1236	150	527	1416	849			1456
GDT03VM/EV15/08FI075T	1306	150	527	1486	849			1553
GDT03VM/EV15/09FI075T	1354	150	527	1534	849			1760
GDT03VM/EV15/10FI110T	1497	150	527	1677	849			1794
GDT03/EV20/03FI030T	835	150	527	1062.5	849	DN100	DN100	932
GDT03/EV20/04FI040T	883	150	527	1110.5	849			1035
GDT03/EV20/05FI055T	1140	150	527	1320	849			1277
GDT03/EV20/06FI075T	1210	150	527	1390	849			1415
GDT03/EV20/07FI075T	1258	150	527	1438	849			1553
GDT03/EV20/08FI110T	1401	150	527	1580	849			1725
GDT03/EV20/09FI110T	1449	150	527	1629	849			1794
GDT03/EV20/10FI110T	1497	150	527	1677	849			1863

*Dimensional tolerance ± 30 mm

Technical Appendix

HOW TO CHOOSE A BOOSTER SET

The following is for reference only and provides indicative values.

Determining the characteristics of a booster set (flow rate and pressure head) must involve an analytical calculation that takes into account the laws and regulations in force.

DETERMINING FLOW AND HEAD

If the water distribution network is insufficient to meet hydraulic requirements and guarantee the correct operation of utilities, it is advisable to install a booster set.

The booster set performance characteristics must be determined according to the type of installation (residential or not), the quantity of water required (set flow) and the pressure (set head).

DETERMINING SET FLOW

Residential buildings

The main factors for calculating the flow rate are:

- The number of utilities
- The amount of water required by each utility
- The simultaneous use factor

A utility is a delivery point.

The sum of the flow rates of all the utilities present in an apartment multiplied by the apartments present provides the maximum water requirement (theoretical maximum set flow rate)

Maximum water consumption for each delivery point	
UTILITY / DELIVERY POINT	Max q. [l/min]
Wash basin	9 ÷ 10
Bidet	6
Flush tank WC	6 ÷ 7
Rapid flush WC	90
Bathtub	15 ÷ 18
Shower	12
Kitchen sink	9 ÷ 12
Washing machine	12
Dishwasher	10

In practice, however, only some of the utilities are used simultaneously at specific times:

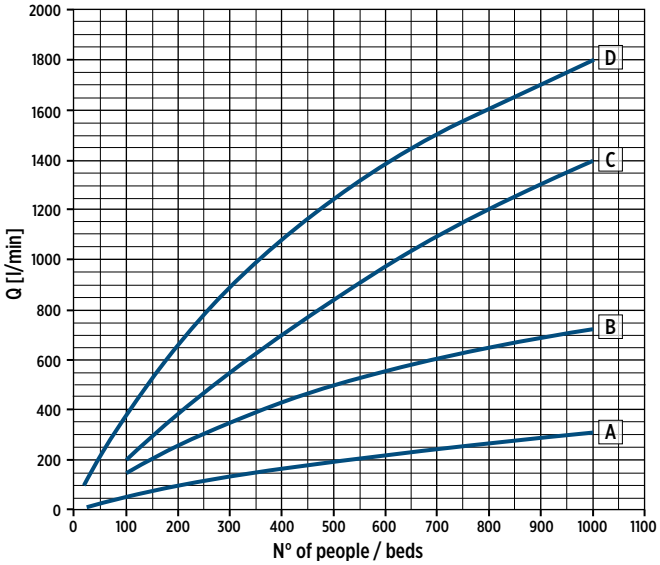
Need of domestic utilities				
TYPE WC	Flush tank WC		Controlled flushing system WC	
No. Apartments	No. WC		No. WC	
	1	2	1	2
	Flow [m3/h]			
1	2	2.4	3.6	4.8
2	2.7	3.4	5.1	6.7
4	3.8	4.8	7.3	9.5
6	4.7	5.9	8.9	11.6
8	5.4	6.8	10.3	13.4
9	5.7	7.2	10.9	14.2
10	6	7.5	11.5	15
12	6.6	8.3	12.6	16.4
14	7.2	8.9	13.6	17.7
16	7.7	9.5	14.6	18.9
18	8.1	10.1	15.4	20.1
20	8.6	10.7	16.2	21.2
24	9.3	11.7	17.8	23.2
30	10.5	13.1	19.9	25.9
35	11.3	14.1	21.5	28
40	12	15	23	29.9
45	12.8	15.9	24.3	31.7
50	13.5	16.8	25.7	33.5

Notes: The values in table are indicatives and are determinated considering 7 supply points for apartments with 1 restroom and 11 supply points for apartments with 2 restrooms.

Non-residential buildings

Non-residential buildings include department stores, offices, hotels and hospitals.
The water requirement for these structures is almost always greater than for domestic utilities.

In these complexes, the factor to consider is the number of people or beds.
In bathing areas, the required flow rate must be increased by at least 20%.



A: Offices
B: Large shops
C: Hospitals
D: Hotels

Note: The graphs above are indicative. These cannot replace an analytical calculation and/or current laws and regulations.

DETERMINING SET HEAD

In civil buildings, the water distribution network must generally comply with the following conditions:
Minimum pressure at the most unfavourable point: 1.5 bar (for appliances, taps and fittings) and 2 bar (for rapid flush toilets)
Maximum pressure at the most favourable point: 5 bar

Generally depending on the type of set installation, two different methods can be used to calculate the set pressure head

Installation types:

- Positive pressure head. In this case, on the suction side of the set there is a pressure value greater than zero (example: tank or collection basin placed at a greater height than the set, or the set draws from a pressurised pipe)
- Negative pressure head. In this case, on the suction side of the set there is a pressure value less than zero (example: the set draws water from a tank located beneath the set)

Below, we define the pressure head values to be considered and that result:

- HTot: Pressure head that the booster set must deliver
- HGeo: Geodetic difference between the set and the highest user
- HIn: Identifies the height value in suction. In the case of a positive pressure head, this will have a value greater than zero and must be subtracted, while in the case of a negative pressure head, it will have a value less than zero and must be added. In the case of a level installation, the value of HIn is equal to 0
- HPc: Identifies the value of the load losses that occur in the system (valves, pipes, filters, etc.)
- HPr: Pressure requested at the most unfavourable point

POSITIVE PRESSURE HEAD SUCTION (INSTALLATION BENEATH PRESSURE HEAD)
HTot: HGeo+HPc+HPr-HIn

NEGATIVE PRESSURE HEAD SUCTION (INSTALLATION ABOVE PRESSURE HEAD)
HTot: HGeo+HPc+HPr+HIn

Always check the suction conditions. HIn values that are too high or an incorrect dimensioning of the suction pipe can cause the set to malfunction (e.g. cavitation and/or priming)

SELECTION AND DIMENSIONS OF THE AUTOCLAVE TANK

Autoclave tanks have the function of limiting the number of pump starts at each water request by accumulating a certain amount of pressurised water.

In multi-pump sets, the sizing of the tank is determined on the basis of the data for a single pump.

VARIABLE SPEED SETS

In variable speed sets controlled by an inverter, the expansion vessel has the sole function of compensating for losses (or minimum water consumption) and maintaining pressure when the pump is stopped, thus avoiding frequent start/stop cycles.

Determining the volume

IT IS of fundamental importance to correctly choose the pre-charge volume and pressure of the expansion vessel. Volumes that are too small do not effectively compensate for the minimum water consumption or losses when the electric pump is stopped while, in addition financial and space waste, volumes that are too high entail difficulties in controlling the pressure operated by the electronic device.

In practice, it is sufficient to place an expansion vessel with a volume approximately equal to 10% of the maximum required flow rate considered in litres/minute.

E.g.: if the maximum required flow rate is 60 litres/min., it is sufficient to use a 6-litre expansion vessel.

Determining pre-charge pressure

The pre-charge pressure of the expansion vessel must be approximately 80% of the operating pressure.

E.g.: if the pressure to be maintained in the inverter, which is to be maintained regardless of water consumption, is 4 bar, the pre-charge pressure of the expansion vessel must be about 3.2 bar.

FIXED SPEED SETS

The sizing of the diaphragm autoclave must be determined based on the capacity of the electric pump, the start and stop pressures and the number of starts allowed per hour.

Determining the volume

The volume is calculated using the following formula

$$V_m = \frac{Q_m}{4 \times z} \times \frac{1}{1 - \frac{(Pr\ start - 2)}{Pr\ stop}}$$

Vm = Volume of the diaphragm autoclave in m^3

Qm = Average flow rate for the electric pump in m^3/h

Z = Maximum number of starts per hour allowed by the motor (see electric pump user and maintenance manual)

Pr Start = Minimum pressure switch setting (expressed in metres)

Pr Stop = Maximum pressure switch setting (expressed in metres)

Example

Electric pump model: EV 10/10

Motor power: 4 kW

Maximum number of starts: 30

Qm: 10 m^3/h

PrStart: 75 m

PrStop: 85 m

Vm: 0.59 m^3/h

A 750-litre autoclave should be chosen.

$$V_m = \frac{10}{4 \times 30} \times \frac{1}{1 - \frac{(75 - 2)}{85}} = 0.59\ m^3/h$$

Determining pre-charge pressure

The correct pre-charge setting is essential for the operation of the expansion vessel.

For expansion vessels installed on electric pumps controlled by pressure switches whose pressure differential is not greater than 2 bar, the pre-charge pressure must be set at 0.2 bar below the starting pressure of the electric pump.

For expansion vessels installed on electric pumps controlled by pressure switches whose pressure differential is greater than 2 bar, the pre-charge pressure must be set to 65% of the stop pressure or maximum system pressure.

LOAD LOSSES

PVC, PE or other polymer tubing with internal roughness less than 0.01 mm (smooth pipes)

Q		U.M. *	Internal diameter in mm and inches										
			15	20	25	32	40	50	65	80	100	125	150
[m³/h]	[l/min]		½"	¾"	1"	1" ¼	1" ½	2"	2" ½	3"	4"	5"	6"
0.3	5	Pc [m]	2.66	0.68	0.24	0.08							
		V [m/s]	0.48	0.27	0.17	0.11			Pc values must be multiplied by: 1.5 for steel pipes 2 for cast iron pipes 1.1 for stainless-steel pipes				
0.6	10	Pc [m]	8.96	2.26	0.78	0.25	0.09						
		V [m/s]	0.95	0.54	0.34	0.21	0.14						
0.9	15	Pc [m]	18.44	4.6	1.58	0.49	0.17	0.06					
		V [m/s]	1.42	0.8	0.51	0.32	0.2	0.13					
1.2	20	Pc [m]	30.97	7.67	2.62	0.81	0.28	0.1	0.03				
		V [m/s]	1.89	1.07	0.68	0.42	0.27	0.17	0.11				
1.5	25	Pc [m]	46.45	11.44	3.9	1.19	0.41	0.15	0.05				
		V [m/s]	2.36	1.33	0.85	0.52	0.34	0.22	0.13				
1.8	30	Pc [m]	64.83	15.88	5.39	1.65	0.57	0.2	0.06	0.03			
		V [m/s]	2.84	1.6	1.02	0.63	0.4	0.26	0.16	0.1			
2.1	35	Pc [m]	86.08	20.99	7.1	2.16	0.74	0.26	0.08	0.03			
		V [m/s]	3.31	1.86	1.19	0.73	0.47	0.3	0.18	0.12			
2.4	40	Pc [m]	110.18	26.76	9.03	2.74	0.94	0.33	0.1	0.04			
		V [m/s]	3.78	2.13	1.36	0.83	0.54	0.34	0.21	0.14			
2.7	45	Pc [m]	137.09	33.18	11.17	3.38	1.16	0.4	0.12	0.05	0.02		
		V [m/s]	4.25	2.39	1.53	0.94	0.6	0.39	0.23	0.15	0.1		
3	50	Pc [m]	166.82	40.25	13.52	4.08	1.4	0.48	0.14	0.06	0.02		
		V [m/s]	4.72	2.66	1.7	1.04	0.67	0.43	0.26	0.17	0.11		
3.6	60	Pc [m]	234.63	56.3	18.83	5.67	1.93	0.66	0.19	0.07	0.03		
		V [m/s]	5.67	3.19	2.04	1.25	0.8	0.51	0.31	0.2	0.13		
4.2	70	Pc [m]	313.55	74.88	24.96	7.49	2.54	0.87	0.25	0.1	0.04	0.02	0.01
		V [m/s]	6.61	3.72	2.38	1.46	0.93	0.6	0.36	0.24	0.15	0.1	0.07
4.8	80	Pc [m]	403.53	95.97	31.89	9.54	3.23	1.1	0.32	0.12	0.04	0.02	0.01
		V [m/s]	7.55	4.25	2.72	1.66	1.07	0.68	0.41	0.27	0.17	0.11	0.08
5.4	90	Pc [m]	504.52	119.55	39.62	11.82	3.99	1.36	0.39	0.15	0.05	0.02	0.01
		V [m/s]	8.5	4.78	3.06	1.87	1.2	0.77	0.46	0.3	0.2	0.13	0.09
6	100	Pc [m]	616.5	145.63	48.15	14.32	4.83	1.64	0.47	0.18	0.06	0.03	0.01
		V [m/s]	9.44	5.31	3.4	2.08	1.33	0.85	0.51	0.34	0.22	0.14	0.1
7.2	120	Pc [m]		205.18	67.55	20.01	6.73	2.28	0.65	0.24	0.09	0.03	0.02
		V [m/s]		6.37	4.08	2.49	1.6	1.02	0.61	0.4	0.26	0.17	0.12
8.4	140	Pc [m]		274.57	90.08	26.58	8.91	3.01	0.85	0.32	0.11	0.04	0.02
		V [m/s]		7.44	4.76	2.91	1.86	1.19	0.71	0.47	0.3	0.2	0.14
9.6	160	Pc [m]		353.77	115.7	34.02	11.37	3.83	1.08	0.4	0.14	0.05	0.02
		V [m/s]		8.5	5.44	3.32	2.13	1.36	0.81	0.54	0.34	0.22	0.16
10.8	180	Pc [m]		442.73	144.41	42.34	14.12	4.75	1.33	0.49	0.17	0.06	0.03
		V [m/s]		9.56	6.12	3.74	2.39	1.53	0.91	0.6	0.39	0.25	0.17
12	200	Pc [m]			176.2	51.52	17.14	5.75	1.61	0.59	0.21	0.07	0.03
		V [m/s]			6.8	4.15	2.66	1.7	1.01	0.67	0.43	0.28	0.19
14.4	240	Pc [m]			248.94	72.47	24.01	8.03	2.24	0.82	0.28	0.1	0.04
		V [m/s]			8.16	4.98	3.19	2.04	1.21	0.8	0.51	0.33	0.23
15.6	260	Pc [m]			289.9	84.22	27.86	9.3	2.59	0.95	0.33	0.12	0.05
		V [m/s]			8.84	5.4	3.46	2.21	1.31	0.87	0.56	0.36	0.25
16.8	280	Pc [m]			333.89	96.83	31.97	10.66	2.96	1.09	0.37	0.13	0.06
		V [m/s]			9.52	5.81	3.72	2.38	1.41	0.93	0.6	0.39	0.27
18	300	Pc [m]				110.28	36.36	12.11	3.36	1.23	0.42	0.15	0.06
		V [m/s]				6.23	3.99	2.55	1.51	1	0.64	0.41	0.29
21	350	Pc [m]				147.63	48.51	16.1	4.45	1.63	0.56	0.19	0.08
		V [m/s]				7.26	4.65	2.98	1.76	1.17	0.75	0.48	0.34

Q		U.M. *	Internal diameter in mm and inches										
			15	20	25	32	40	50	65	80	100	125	150
[m³/h]	[l/min]		½"	¾"	1"	1" ¼	1" ½	2"	2" ½	3"	4"	5"	6"
24	400	Pc [m]				190.25	62.33	20.63	5.69	2.07	0.71	0.24	0.1
		V [m/s]				8.3	5.31	3.4	2.02	1.33	0.85	0.55	0.38
27	450	Pc [m]				238.12	77.82	25.69	7.07	2.57	0.87	0.3	0.13
		V [m/s]				9.34	5.98	3.83	2.27	1.5	0.96	0.62	0.43
30	500	Pc [m]					94.97	31.28	8.58	3.11	1.05	0.36	0.15
		V [m/s]					6.64	4.25	2.52	1.66	1.07	0.68	0.48
36	600	Pc [m]					134.22	44.04	12.03	4.35	1.47	0.5	0.21
		V [m/s]					7.97	5.1	3.02	2	1.28	0.82	0.57
42	700	Pc [m]					180.05	58.88	16.02	5.77	1.94	0.66	0.28
		V [m/s]					9.29	5.95	3.52	2.33	1.49	0.96	0.67
48	800	Pc [m]						75.8	20.56	7.39	2.48	0.84	0.35
		V [m/s]						6.8	4.03	2.66	1.7	1.09	0.76
54	900	Pc [m]						94.8	25.64	9.19	3.08	1.04	0.43
		V [m/s]						7.65	4.53	2.99	1.92	1.23	0.85
60	1000	Pc [m]						115.85	31.25	11.18	3.74	1.26	0.52
		V [m/s]						8.5	5.03	3.32	2.13	1.36	0.95
72	1200	Pc [m]							44.08	15.72	5.24	1.76	0.73
		V [m/s]							6.04	3.99	2.55	1.64	1.14
84	1400	Pc [m]							59.03	20.99	6.97	2.34	0.96
		V [m/s]							7.04	4.65	2.98	1.91	1.33
96	1600	Pc [m]							76.09	26.99	8.94	2.99	1.23
		V [m/s]							8.05	5.31	3.4	2.18	1.51
108	1800	Pc [m]							95.26	33.71	11.14	3.72	1.53
		V [m/s]							9.05	5.98	3.83	2.45	1.7
120	2000	Pc [m]								41.16	13.58	4.52	1.85
		V [m/s]								6.64	4.25	2.72	1.89

* **V:** Average speed (v, in m/s)
Pc: Load losses (H, in metres of water column) per 100 m of linear tubing (excluding joints)

It is advisable to keep the speed of the liquid in the pipe below 5 m/s (preferably less than or equal to 3 m/s)

NOTES

NOTES

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