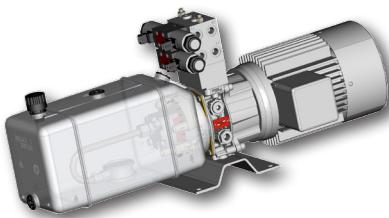


Hydraulic Mini Power Pack
USMA 05
 Q_{\max} 4.5 GPM • p_{\max} 3600 PSI • P_{\max} 3 kW

Example: plastic tank version

Example: steel tank version

Technical Features

- › AC and DC electro-hydraulic unit, easy-to-assemble, compact
- › Modularity offers many combinations of hydraulic circuits to suit various requirements
- › Main applications are fork lifts, lifting platforms, automotive lifts, cranes for small trucks, snow plows, machine tools, food and textile industry
- › 7 central block basic circuits options
- › Possibility of building up an additional circuit in the form of vertical or horizontal stacking assembly
- › Rated power up to 5 HP with DC and AC
- › Single and triple-phase motors with power ratings of up to 5HP
- › Tank capacities from 0.578 - 11.62 Gallons with optional plastic tanks for cost saving
- › In the standard version, the aluminium basic block is without surface protection and steel plate are zinc coated for 240 h protection acc. to ISO 9227

Functional Description

Each power pack consists of an electric motor, a pump, a manifold and a tank. The aluminum Die-cast Body forms the base of the power pack, on which all the main components, including the hydraulic elements, are mounted. The function of the power packs is apparent from the respective hydraulic circuit diagrams. The desired combination of particular components and hydraulic elements can be defined by reference to the ordering code and the respective tables. The lay-out of additional circuits is defined by an application number which determines the manufacturer.

The hydraulic circuits can be accomplished in sizes 03, 04 and 06. The size 03 is in a form of sectional directional valves.

The mounting position of the power pack is either horizontal or vertical - see the Power Pack Dimensions on pages 11 to 18. All ports have 9/16-18 UNF SAE J1926-1 internal threads.

With the standard model the connecting ports A, B of the components of the vertical stacking assembly are oriented onto one side. Orientation of ports A, B each onto another side is to be agreed with the manufacturer.

The basic combinations of electric motors and pumps, as well as their code designations, are shown in tables 1, 2 and 3.

Information regarding the basic power pack surface treatment is on this page, see below

Technical Data

Flow rate	GPM	see table 1, 2, 3, 4 and 5		
Working pressure	PSI	see table 1, 2, 3, 4 and 5		
Max. operating pressure	PSI	see table 1, 2, 3 and 4		
Tank capacity	gal (L)	0.578 - 11.62 (2-74)		
Type of hydraulic pump	gear pump, COUNTER-CLOCKWISE			
Electrical Motor power ratings	HP (kW)	1/4 - 5 (0.188-3.75)		
Type of electric motor		one-phase	three phase	DC
Voltage of the electric motor (specials for request)	V	115-230	230/460	12/24
Frequency	Hz	60	60	-
Voltage of directional valves		2DC, 24DC, 115AC/ 60Hz Other voltages - CF		
Duty cycle S3 of electric motor	%	AC 100, DC see table		
Viscosity range	SUS (mm ² /s)	98 ... 461(20 ... 100)		
Fluid temperature range	°F (°C)	+32 ... 158 (0 ... +70)		
Fluid temperature range for a short term 10 minute max.	°F (°C)	-68 (-20) minimum	+176 (+80) maximum	
Ambient temperature max.	°F (°C)	-77 ... +122 (-25 ... +50)		
Thread of functional ports P, T, M, A, B		9/16-18 UNF SAE J1926-1(6 SAE)		

	Data Sheet	Type	
General information	GI_0060	Products and operating conditions	

Standard Surface Treatment

Model	Material used	Surface treatment
Cylindrical steel tank	sheet steel	Komaxit RAL 7030
Square steel tank / cover	sheet steel	Komaxit RAL 7030
Cylindrical plastic tank	BOREALIS ME 8131 (transparent)	without surface treatment
Square plastic tank	MOSTEN (transparent)	without surface treatment
DC electric motor		zinc-coated
AC electric motor		RAL 7030
Other components acc. to manufacturer standard		

For other surface treatment consult factory.

Ordering Code

Single Pump

USMA 05- / . - - . - /

Compact power pack

Pump displacement in cm³

Series GP1

0.8	08
1.2	12
1.6	16
2.1	21
2.5	25
3.3	33
3.6	36
4.4	44
4.8	48
5.8	58
6.2	62
7.9	79

Code of the electric motor
(see tables 1-6)

DC electric motor

with switch

one-phase electric motor

without starting module

with starting module

three-phase electric motor

R

0

M

0

Type of hydraulic circuit
(see table on pages 8)

Code of the tank
see pages 13, 14-18

01200	12 V DC
02400	24 V DC
20500	205 V DC
23050	230 V AC 50 (60) Hz

Nominal size of stacking assembly elements	
0	without
3	size 03
4	size 04
6	size 06
	(see page 13)

Parallel plate	
0	without
1	1 section
2	2 sections
3	3 sections
4	4 sections
5	5 sections
	(see page 13)

Base plate	
0	without
A	configuration A
B	configuration B
C	configuration C
D	configuration D
E	configuration E
F	configuration F
	(see page 8)

Foot bracket	
0	without foot bracket
F	low foot bracket

Type of filter used	
0	without filter
S	suction filter
R*	return line filter without indication
E*	return line filter with el. indication
M*	return line filter with manometer

*only for tank codes 56-60 and 30-32

Ordering Code

Double Pump

USMA05- [] / [] . [] 0 - G - [] [] - [] [] - [] [] / []

Compact power pack

Pump displacement in cm³

Series GP1

4.8 + 1.2 cm ³	4812
4.8 + 1.6 cm ³	4816
4.8 + 2.1 cm ³	4821
5.8 + 1.2 cm ³	5812
5.8 + 1.6 cm ³	5816
5.8 + 2.1 cm ³	5821
6.2 + 1.2 cm ³	6212
6.2 + 1.6 cm ³	6216
6.2 + 2.1 cm ³	6221
7.9 + 1.2 cm ³	7912
7.9 + 1.6 cm ³	7916
7.9 + 2.1 cm ³	7921

Code of the e-motor
1 - 8, 9 - 24, 27 - 35

(see tables 4, 5)

Code of the tank
24, 31, 32, 44, 45, 55, 58, 59, 60, 69, 70

Type of filter used

without filter	0
suction filter	S
return line filter without indication	R*
return line filter with el. indication	E*
return line filter with manometer	M*

*only for tank codes 58-60 and 31-32

Solenoid voltage

01200	12 V DC
02400	24 V DC
20500	205 V DC
23050	230 V AC 50 (60) Hz

Nominal size of stacking assembly elements without stacking assembly

size 03
size 04
size 06
(see page 13)

0	Parallel plate without stacking assembly
1	1 section
2	2 sections
3	3 sections
4	4 sections
5	5 sections
	(see page 13)

0	Base platte without stacking assembly
A	configuration A
B	configuration B
C	configuration C
D	configuration D
E	configuration E
F	configuration F
	(see page 8)

0	Foot bracket without foot bracket
F	low foot bracket
K	high foot bracket (only for tank codes 40-45)

Tab. 1a Single Pumps AC Electric Motors - three-phase

Code of the three-phase motor			Code of the pump									
			08 P2-...	12 P2-...	16 P2-...	21P2 ..	25 P2-...	33 P2-...				
pmax. ** [PSI]			3626									
460V	n [R.P.M.]	p [HP]	Q/pn * [GPM] / [PSI]									
9	1725	1/4	0.4	928	0.6	638	0.7	479	0.9	377		
10		1/3	0.4	1233	0.6	841	0.7	638	0.9	508	1.1	421
11		1/2	0.4	1857	0.6	1262	0.7	957	0.9	769	1.1	638
12		3/4	0.4	2785	0.6	1900	0.7	1436	0.9	1146	1.1	957
13		1			0.6	2524	0.7	1915	0.9	1523	1.1	1276
14		1-1/2					0.7	2886	0.9	2292	1.1	1900
15		2							0.9	2901	1.1	2538
16		3										1.4
17		5										2886
25	3450	1/3	0.7	624	1.1	421						
26		1/2	0.7	928	1.1	638	1.4	479	1.8	377		
27		3/4	0.7	1392	1.1	943	1.4	725	1.8	566	2.2	479
28		1	0.7	1857	1.1	1262	1.4	957	1.8	769	2.2	638
29		1-1/2	0.7	2785	1.1	1900	1.4	1436	1.8	1146	2.2	957
30		2			1.1	2524	1.4	1914	1.8	1523	2.2	1276
31		3							1.8	2292	2.2	1900
32		5									2.2	2901
												2393

Tab. 1a Single Pumps AC Electric Motors - three-phase

Code of the three-phase motor			Code of the pump									
			36 P2-...	44 P2-...	48 P2-...	58 P2-...	62 P2-...	79 P2-...				
pmax. ** [PSI]			3626									
460V	n [R.P.M.]	p [HP]	Q/pn.* [GPM] / [PSI]									
9	1725	1/4										
10		1/3										
11		1/2	1.6	435	1.9	363						
12		3/4	1.6	667	1.9	551	2.1	493	2.5	406	2.7	392
13		1	1.6	885	1.9	725	2.1	667	2.5	551	2.7	508
14		1-1/2	1.6	1320	1.9	1088	2.1	1001	2.5	827	2.7	769
15		2	1.6	1769	1.9	1450	2.1	1334	2.5	1102	2.7	1030
16		3	1.6	2654	1.9	2176	2.1	2002	2.5	1653	2.7	1537
17		5				2.1	2901	2.5	2741	2.7	2567	3.4
25	3450	1/3										
26		1/2										
27		3/4	3.1	334								
28		1	3.1	435	3.8	363	4.2	334				
29		1-1/2	3.1	667	3.8	551	4.2	493				
30		2	3.1	885	3.8	725	4.2	667				
31		3	3.1	1320	3.8	1088	4.2	1001				
32		5	3.1	2205	3.8	1813	4.2	1668				

* p_n - nominal pressure = the highest working pressure allowed without time restriction

** p_{max} - maximum allowable pressure of the pump for max. 20 sec. Motor overload max. 30 % for max. 20 sec.

In the case of rotation speed control keep the speed limits of the gear pump - see Gear Pumps catalog.

Tab. 2a Single Pumps AC Electric Motors - single-phase

Code of the single-phase motor			Code of the pump																	
			08 P2-...		12 P2-...		16 P2-...		21 P2 ..		25 P2-...									
pmax. ** [PSI]			3626																	
230 V n [R.P.M.] p [HP]			Q/pn.* [GPM] / [PSI]																	
1	1/4	0.4	928	0.6	638	0.7	479	0.9	377	1.1	319									
2		0.4	1233	0.6	841	0.7	638	0.9	508	1.1	421	1.4								
3		0.4	1857	0.6	1262	0.7	957	0.9	769	1.1	638	1.4								
4				0.6	1900	0.7	1436	0.9	1146	1.1	957	1.4								
5						0.7	1915	0.9	1523	1.1	1276	1.4								
6								0.9	2901	1.1	1900	1.4								
7											1.4	1914								
8																				
18	1/3	0.7	624	1.1	421	1.4	319	1.8	261											
19		0.7	928	1.1	638	1.4	479	1.8	377	2.2	319									
20		0.7	1392	1.1	943	1.4	725	1.8	566	2.2	479	2.9								
21		0.7	1857	1.1	1262	1.4	957	1.8	769	2.2	638	2.9								
22		0.7	2785	1.1	1900	1.4	1436	1.8	1146	2.2	957	2.9								
23				1.1	2524	1.4	1914	1.8	1523	2.2	1276	2.9								
24						1.4	2886	1.8	2901	2.2	1900	2.9								
												1436								

Tab. 2b Single Pumps AC Electric Motors - single-phase

Code of the single-phase motor			Code of the pump																	
			36 P2-...		42 P2-...		48 P2-...		58 P2 ..		62 P2-...									
pmax. ** [PSI]			3626																	
230 V n [R.P.M.] p [HP]			Q/pn.* [GPM] / [PSI]																	
1	1/4																			
2		1.6	290	1.9	247															
3		1.6	435	1.9	363	2.1	334	2.5	276	2.7	261									
4		1.6	667	1.9	551	2.1	493	2.5	406	2.7	392	3.4								
5		1.6	885	1.9	725	2.1	667	2.5	551	2.7	508	3.4								
6		1.6	1320	1.9	1088	2.1	1001	2.5	827	2.7	769	3.4								
7		1.6	1770	1.9	1450	2.1	1334	2.5	1102	2.7	1030	3.4								
8				1.9	2176	2.1	2002	2.5	1653	2.7	1537	3.4								
18	1/3																			
19																				
20																				
21		3.1	334	3.8	276															
22		3.1	435	3.8	363	4.2	334													
23		3.1	667	3.8	551	4.2	493													
24		3.1	885	3.8	725	4.2	667													
		3.1	1320	3.8	1088	4.2	1001					1218								

*p_n - nominal pressure = the highest working pressure allowed without time restriction

** p_{max} - maximum allowable pressure of the pump for max. 20 sec. Motor overload max. 30 % for max. 20 sec.

In the case of rotation speed control keep the speed limits of the gear pump - see Gear Pumps catalog.

Tab. 3a Double Pumps AC Electric Motors 400 V - three-phase

Pump code	P1+P2	4812	4816	4821	5812	5816	5821
P2 p _{max}	[PSI]	250	for a short period only - max. 20 s				
P1 p _{max}	[PSI]	184	173	160	166	157	147
3 phase E-motor	Q1	p1 _n		Q1, Q2 [l/min] p1 _{n'} , p2 _n [bar]	P1 p _{max} is limited due to torque of the pump shaft		
code	P [HP]	Q2	p2 _n				
11	1/2	6.1	25	6.1	20		
		1.4	120	1.9	90		
12	3/4	6.1	35	6.1	35	7.4	30
		1.4	180	1.9	135	2.6	105
13	1	6.1	50	6.1	45	6.1	45
		1.4	200	1.9	180	2.6	140
14	1-1/2	6.1	75	6.1	70	6.1	65
		1.4	200	1.9	200	2.6	200
15	2	6.1	100	6.1	95	6.1	85
		1.4	200	1.9	200	2.6	200
16	3	6.1	150	6.1	140	6.1	130
		1.4	200	1.9	200	2.6	200
17	5	6.1	184	6.1	173	6.1	166
		1.4	200	1.9	200	2.6	200
					1.4	200	1.9
						200	2.6
							200

Tab. 3b Double Pumps AC Electric Motors 400 V - three-phase

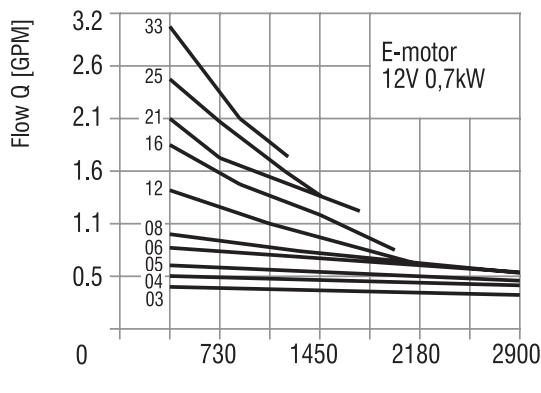
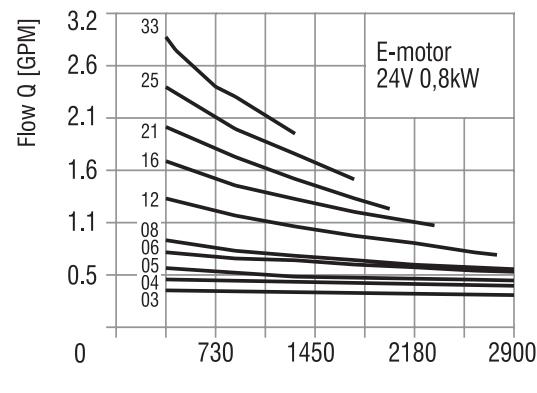
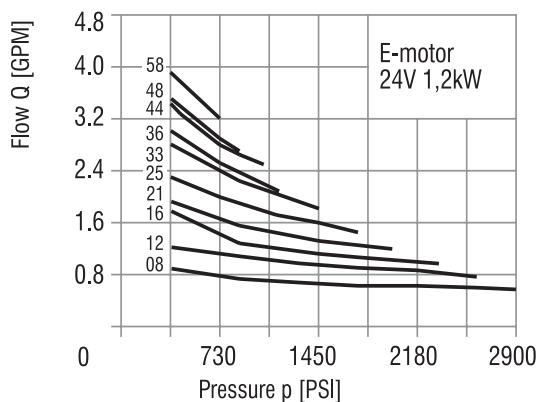
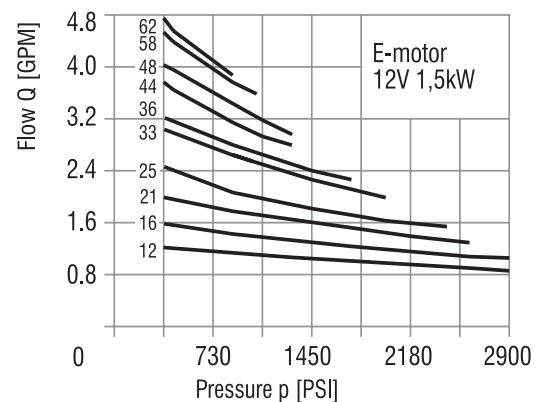
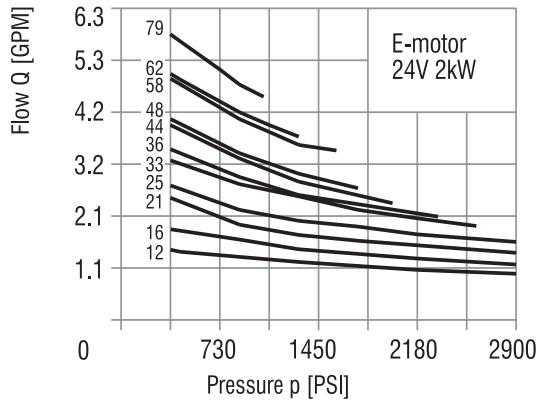
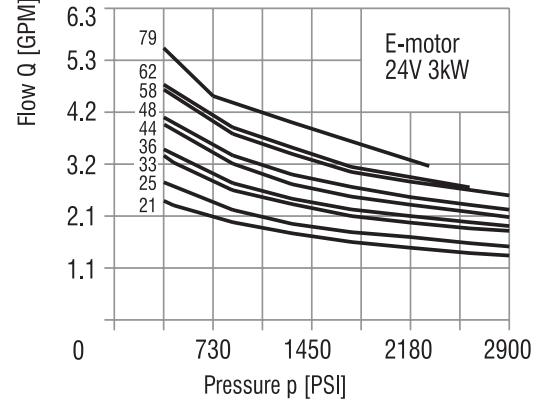
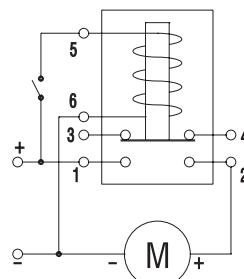
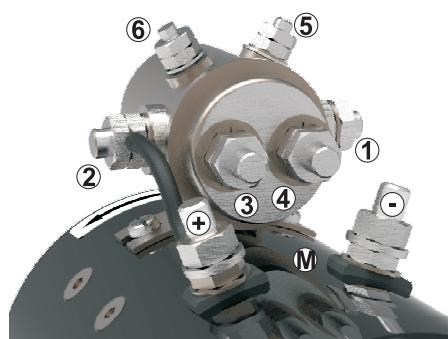
Pump code	P1+P2	6212	6216	6221	7912	7916	7921
P2 p _{max}	[PSI]	250	for a short period only - max. 20 s				
P1 p _{max}	[PSI]	151	143	134	139	133	127
3 phase E-motor	Q1	p1 _n		Q1, Q2 [l/min] p1 _{n'} , p2 _n [bar]	P1 p _{max} is limited due to torque of the pump shaft		
code	P [HP]	Q2	p2 _n				
12	3/4	8	30	8	25		
		1.4	180	1.9	135		
13	1	8	40	8	40	8	35
		1.4	200	1.9	180	2.6	140
14	1-1/2	8	60	8	55	8	50
		1.4	200	1.9	200	2.6	200
15	2	8	80	8	75	8	70
		1.4	200	1.9	200	2.6	200
16	3	8	120	8	115	8	105
		1.4	200	1.9	200	2.6	200
17	5	8	151	8	143	8	134
		1.4	200	1.9	200	2.6	200
				1.4	200	1.9	200
					200	2.6	200

Tab. 4a Double Pumps AC Electric Motors 230 V - one-phase

Pump code	P1+P2	4812	4816	4821	5812	5816	5821
P2 p _{max}	[PSI]	250	for a short period only - max. 20 s				
P1 p _{max}	[PSI]	184	173	160	166	157	147
1 phase E-motor	Q1	p1 _n		Q1, Q2 [l/min] p1 _{n'} , p2 _n [bar]	P1 p _{max} is limited due to torque of the pump shaft		
code	P [HP]	Q2	p2 _n				
4	0.37	6.1	25	6.1	20		
		1.4	120	1.9	90		
5	0.55	6.1	35	6.1	35	7.4	30
		1.4	180	1.9	135	2.6	105
6	0.75	6.1	50	6.1	45	6.1	45
		1.4	200	1.9	180	2.6	140
7	1.1	6.1	75	6.1	70	6.1	65
		1.4	200	1.9	200	2.6	200
8	1.5	6.1	100	6.1	95	6.1	85
		1.4	200	1.9	200	2.6	200
				1.4	200	1.9	200
					200	2.6	200

Tab. 4b Double Pumps AC Electric Motors 230 V - one-phase

Pump code	P1+P2	6212	6216	6221	7912	7916	7921
P2 p _{max}	[PSI]	250	for a short period only - max. 20 s				
P1 p _{max}	[PSI]	151	143	134	139	133	127
1 phase E-motor	Q1	p1 _n		Q1, Q2 [l/min] p1 _{n'} , p2 _n [bar]	P1 p _{max} is limited due to torque of the pump shaft		
code	P [HP]	Q2	p2 _n				
5	0.55	8	30	8	25		
		1.4	180	1.9	135		
6	0.75	8	40	8	40	8	35
		1.4	200	1.9	180	2.6	140
7	1.1	8	60	8	55	8	50
		1.4	200	1.9	200	2.6	200
8	1.5	8	80	8	75	8	70
		1.4	200	1.9	200	2.6	200
				1.4	200	1.9	200
					200	2.6	200

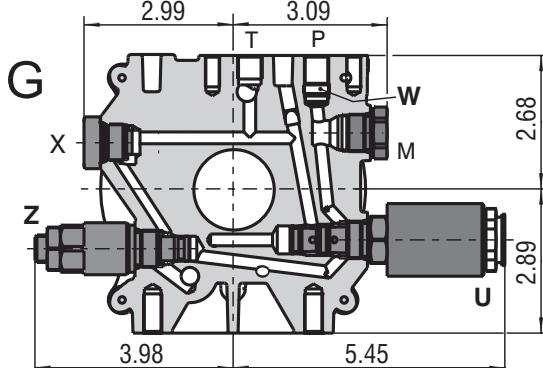
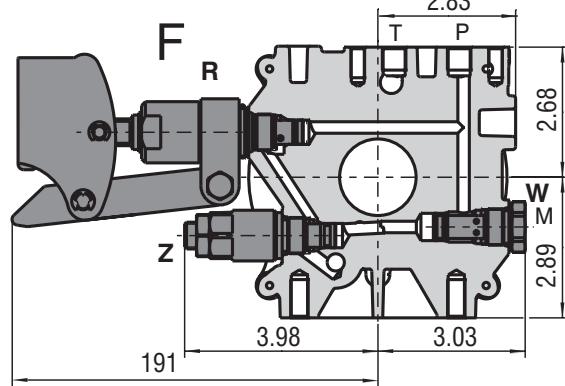
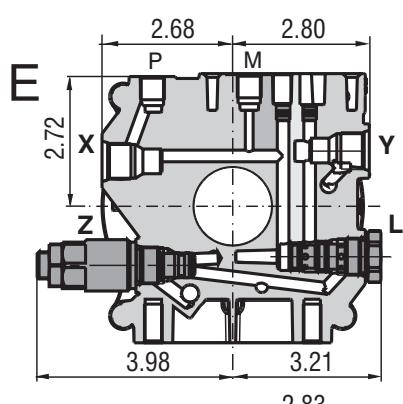
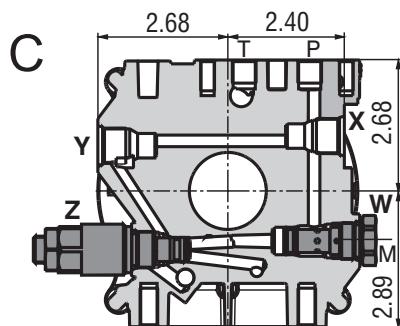
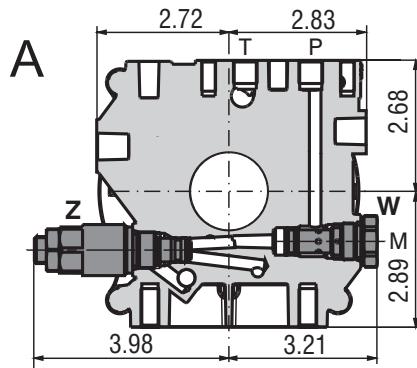
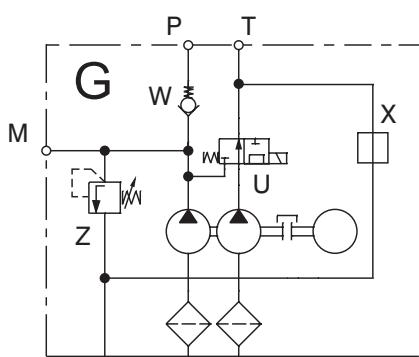
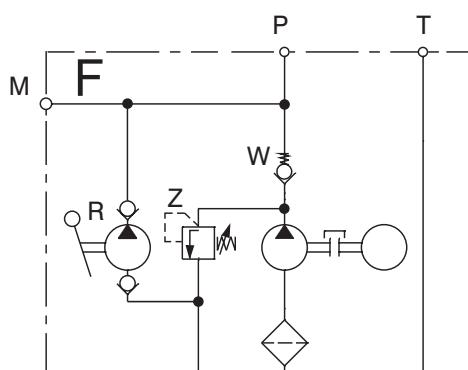
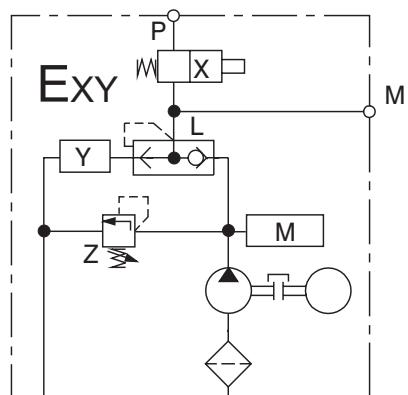
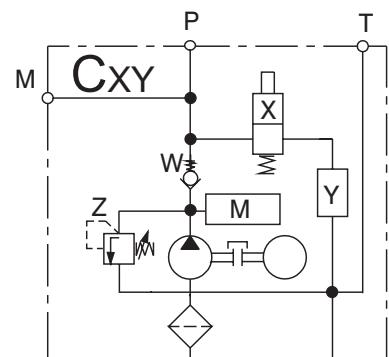
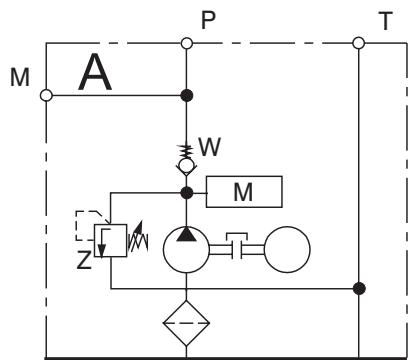
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Code 44

Code 46

Code 51

Code 52

Code 63

Tab. 5
DC Electric Motors


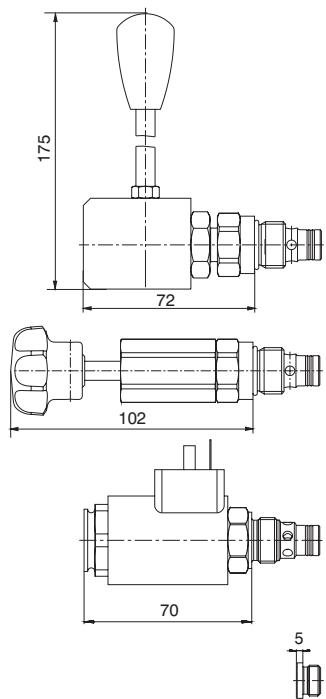
12 V	24 V	HP	(kW)	Protection degree - insulation class
45	/	1	(0.7)	IP 44
/	44	1	(0.8)	IP 44
/	46	1-1/2	(1.2)	IP 44
51	/	2	(1.5)	IP 54
/	52	2-1/2	(2.0)	IP 54
/	63	4	(3.0)	IP 20

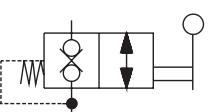
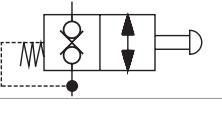
Attention! The DC motors must be loaded so as to reduce the revolutions! Do not run the motors without pressure loading!

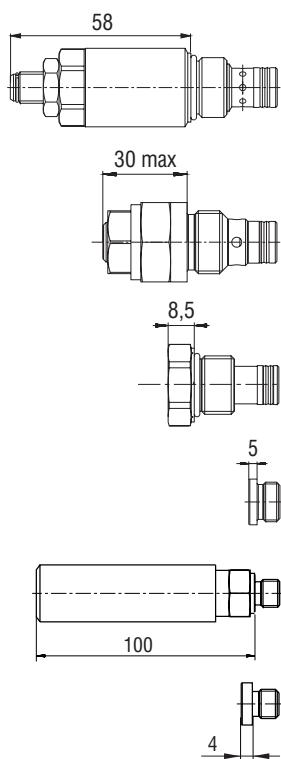
Voltage limits for the switch (between terminals 5 and 6) - min. 18 V for 24 V nominal
 - min. 9 V for 12 V nominal

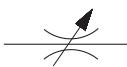
In the case of rotation speed control keep the speed limits of the gear pump - see Gear Pumps catalog.

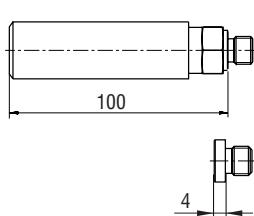


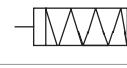


X	X	Functional symbol
4	SD1M-A2/L2S5-2*	
3	SD1M-A2/L2S5-1*	
2	SD3E-A2/*2O2*	
1	SD3E-A2/*2L2*	
0*	17250900	



Y	Type of the throttle valve	Functional symbol
2	SF22A-A2/H**	
**The size of the throttle valve corresponds regularly with the flow rate Q of the pump used. Other throttle valve size on request of the customer.		
1	ST21A-A2/L20S	
0	15960800 for X=0	
0	17250900 for X≠0	



M	Type	Symbols
M*	Starting module	
0*	Plug VSTI G1/4	

*Exact position of the starting module or plug ... ref. page 18

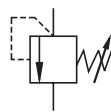
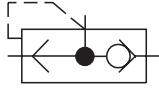
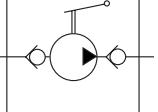
Z	W	L	R	U
Pressure relief valve directly operated	Check valve	Load shuttle	Hand pump	Unloading valve
SR1A-A2/S (HA 5063)	SC1F-A3 (HA 5016) VJ01-06/SG-01	SH1F-A3 (HA 5029)	RC 3/4-16UNF	SD2E-A3/H (HA 4041)
A, B, C, D, F	G (HA 5004)	E	F (HA 2020)	G
				

Table of Dimensions Electric Motors in [inch (mm)]

AC Electric Motor one-phase and three-phase								
Code of EM	Motor	Power [HP (kW)]	Voltage [V]	Current [A] ¹⁾	R.P.M. *	B [inch (mm)]	C [inch (mm)]	D [inch (mm)]
1		1/4 (0.188)	115/208-230	5/2.6-2.5	1725	9.29 (0.37)	4.51 (0.17)	6.19 (0.24)
2		1/3 (0.25)	115/208-230	6/3.2-3	1725	9.29 (0.37)	4.51 (0.17)	6.19 (0.24)
3		1/2 (0.375)	115/208-230	7.4/3.9-3.7	1725	10.39 (0.41)	4.51 (0.17)	6.19 (0.24)
4		3/4 (0.563)	115/208-230	8.2/4.5-4.1	1725	10.39 (0.41)	4.52 (0.18)	6.19 (0.24)
5		1 (0.75)	115/208-230	12.8/7-6.4	1725	10.39 (0.42)	5.25 (0.21)	7.19 (0.28)
6		1-1/2 (1.125)	115/208-230	18/8.4-8	1725	10.39 (0.42)	5.22 (0.20)	7.19 (0.28)
7		2 (1.5)	115/208-230	23/11.7-11.5	1725	10.39 (0.42)	6.00 (0.24)	8.49 (0.33)
8		3 (2.25)	115/208-230	28/15.5-14	1725	10.39 (0.42)	6.00 (0.24)	8.49 (0.33)
9		1/4 (0.188)	208-230/460	1.4-1.3/0.65	1725	9.29 (0.37)	4.53 (0.17)	6.19 (0.24)
10		1/3 (0.25)	208-230/460	1.8-1.6/0.8	1725	9.29 (0.37)	4.53 (0.17)	6.19 (0.24)
11		1/2 (0.375)	208-230/460	2.1-2/1	1725	10.39 (0.41)	4.53 (0.17)	6.19 (0.24)
12		3/4 (0.563)	208-230/460	3.2-3/1.5	1725	10.39 (0.41)	4.53 (0.17)	6.19 (0.24)
13		1 (0.75)	208-230/460	3.7-3.4/1.7	1725	10.39 (0.42)	4.51 (0.78)	6.19 (0.24)
14		1-1/2 (1.125)	208-230/460	5.3-5/2.5	1725	10.39 (0.42)	5.22 (0.20)	7.19 (0.28)
15		2 (1.5)	208-230/460	6.5-6.2/3.1	1725	12.13 (0.48)	5.22 (0.20)	7.19 (0.28)
16		3 (2.25)	208-230/460	8.5-8.2/4.1	1725	12.13 (0.48)	5.22 (0.20)	7.19 (0.28)
17		5 (3.75)	208-230/460	15-13.2/6.6	1725	13.78 (0.57)	6.00 (0.24)	8.49 (0.33)
18		1/3 (0.25)	115/208-230	6/3.2-3	3450	13.78 (0.57)	4.51 (0.78)	6.19 (0.24)
19		1/2 (0.375)	115/208-230	7.4/3.9-3.7	3450	9.29 (0.37)	4.51 (0.78)	6.19 (0.24)
20		3/4 (0.563)	115/208-230	9.6/5-4.8	3450	9.29 (0.37)	4.51 (0.78)	6.19 (0.24)
21		1 (0.75)	115/208-230	11.8/6.1-5.9	3450	10.39 (0.41)	5.25 (0.21)	7.19 (0.28)
22		1-1/2 (1.125)	115/208-230	16/8.4-8	3450	10.39 (0.41)	5.25 (0.21)	7.19 (0.28)
23		2 (1.5)	115/208-230	23/12-11.5	3450	10.39 (0.42)	5.25 (0.21)	7.19 (0.28)
24		3 (2.25)	115/208-230	29/15-14.5	3450	10.39 (0.42)	6.00 (0.24)	8.49 (0.33)
25		1/3 (0.25)	208-230/460	1.5-1.4/0.7	3450	12.13 (0.48)	4.53 (0.17)	6.19 (0.24)
26		1/2 (0.375)	208-230/460	2.1-2/1	3450	13.82 (0.54)	4.53 (0.17)	6.19 (0.24)
27		3/4 (0.563)	208-230/460	2.7-2.6/1.3	3450	9.29 (0.37)	4.53 (0.17)	6.19 (0.24)
28		1 (0.75)	208-230/460	3.7-3.6/1.8	3450	9.29 (0.37)	4.53 (0.17)	6.19 (0.24)
29		1-1/2 (1.125)	208-230/460	4.9-4.6/2.3	3450	10.39 (0.41)	4.53 (0.17)	6.19 (0.24)
30		2 (1.5)	208-230/460	5.7-5.4/2.7	3450	10.39 (0.41)	5.22 (0.20)	7.19 (0.28)
31		3 (2.25)	208-230/460	8.1-7.6/3.8	3450	10.39 (0.42)	5.22 (0.20)	7.19 (0.28)
32		5 (3.75)	208-230/460	13.2-12/6	3450	10.39 (0.42)	6.00 (0.24)	8.49 (0.33)

¹⁾ Please be aware of the starting torque of the single-phase electric motors

DC Electric Motor

Code of EM	Power [HP (kW)]	Voltage [V]	Current [A]*	Speed [1/min]*	Load factor *	B [in (mm)]	C [in (mm)]	D [in (mm)]
44	1 (0.8)	24	40	3300	S2 - 2.5 min	S3 - 7% ED	6.22 (158)	3.82 (97)
45	1 (0.7)	12	135	3300	S2 - 2.5 min	S3 - 4% ED	6.22 (158)	3.82 (97)
46	1-1/2 (1.2)	24	90	3000	S2 - 1.2 min	S3 - 4% ED	6.77 (172)	4.21 (107)
51	2 (1.5)	12	220	2600	S2 - 2 min	S3 - 7.5% ED	7.05 (179)	4.49 (114)
52	2-1/2 (2.0)	24	140	2600	S2 - 1.2 min	S3 - 4.5% ED	7.05 (179)	4.49 (114)
63	4 (3.0)	24	200	1700	S2 - 16 min	S3 - 10% ED	12.52 (318)	5.28 (134)

*Valid for rated power values

Load factor
Duty S1 (min) – Intended for use under continuous duty cycle conditions (load factor S1) for various press-related applications and those which involve dynamic strokes, with recommendation to consult the conditions of use with manufacturer.

Duty S2 (min) - short-time operation

The motor operates with constant load for a definite time until the motor reaches the maximum permissible temperature T max. It is followed by an idle period long enough to reach equality between motor temperature and ambient temperature.

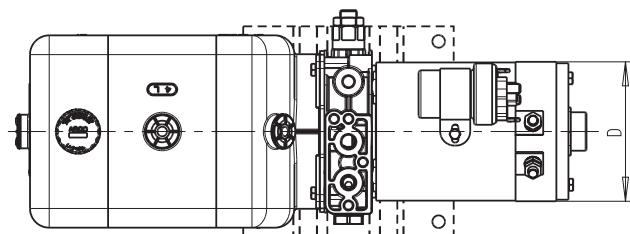
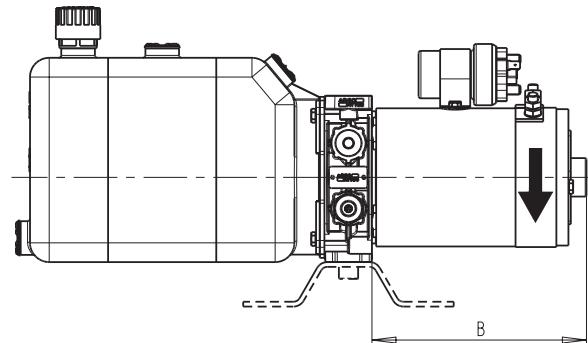
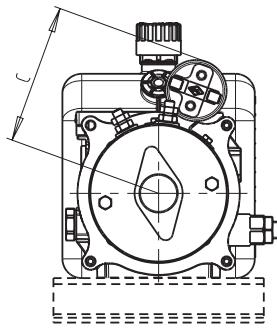
Duty S3 (% ED) - periodic operation

The operation of the motor is a continuous sequence of identical cycles, each compound from a load period and an idle period. During the load period the motor can reach the maximum permissible temperature. S3 value shows, in percentage, the length of the load period with respect to the total cycle-load period more idle period. The S3 curve quoted in the performance specifications is referred to a lengths cycle of 10 minutes.

Valve Dimensions Dimensions in [inch (mm)]

Power pack with DC electric motor

Thread of the connecting ports
P, T, M - 9/16-18 UNF
SAE J1926-1(-6 SAE)



Dimensions B, C, D see Page 10.

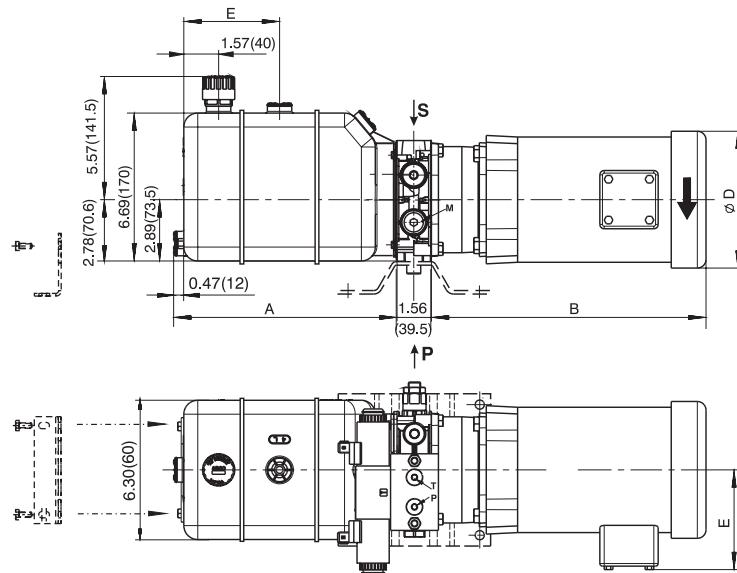
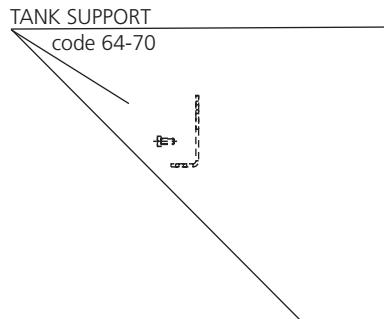
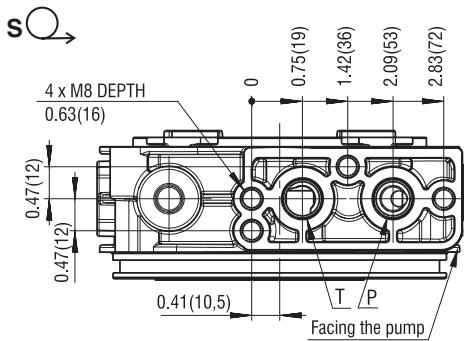
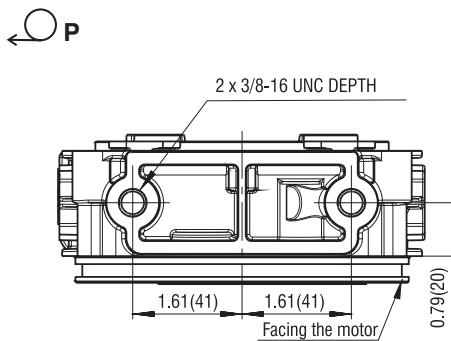
Tank Dimensions Dimensions in [inch (mm)]
Power pack with cylindrical steel tank, one-phase and three-phase motors

- mounting position horizontal

Thread of the connecting ports

P, T, M - 9/16-18 UNF

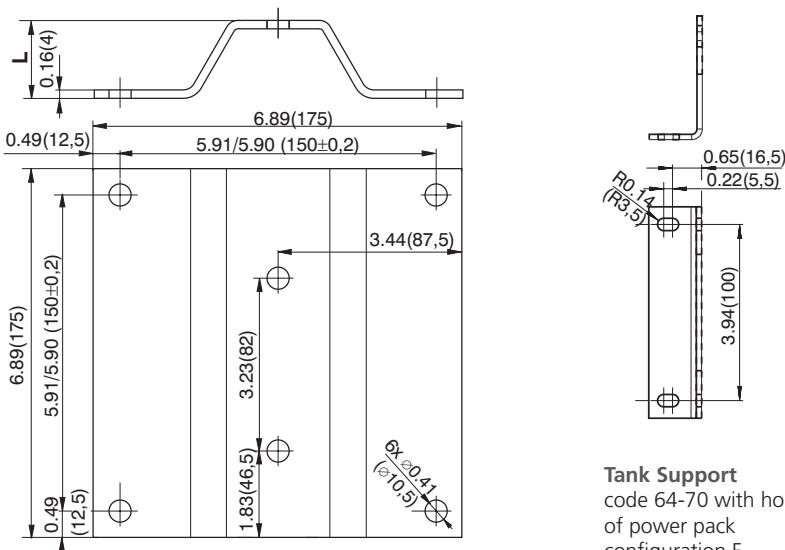
SAE J1926-1(-6 SAE)


Connecting Block

Connecting Holder


Code of the tank	Capacity in US gal [L]	Working volume US gal [L]	A [inch (mm)]	E [inch (mm)]
62	0.528 (2)	0.449 (1.7)	6.850 (174)	-
64	1.056 (4)	0.792 (3.0)	10.669 (271)	110
66	1.585 (6)	1.188 (4.5)	14.213 (361)	155
68	2.113 (8)	1.585 (6.0)	17.756 (451)	200
70	2.641(10)	1.981 (7.5)	21.299 (541)	245

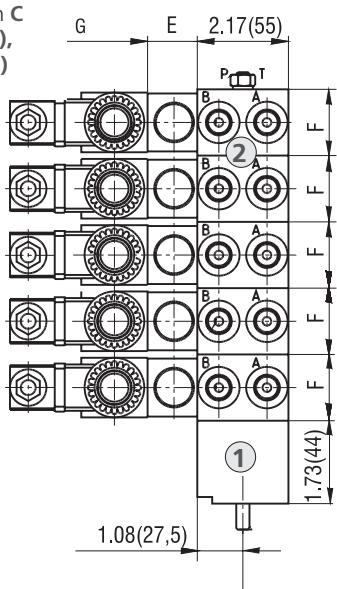
Power pack foot bracket	
Typ	Dimensions L [inch (mm)]
F	1.46 (37)

For AC Power units the mounting bracket is suitable for motors up to 2PH only. Please use for larger motors the feet of the electric motor.

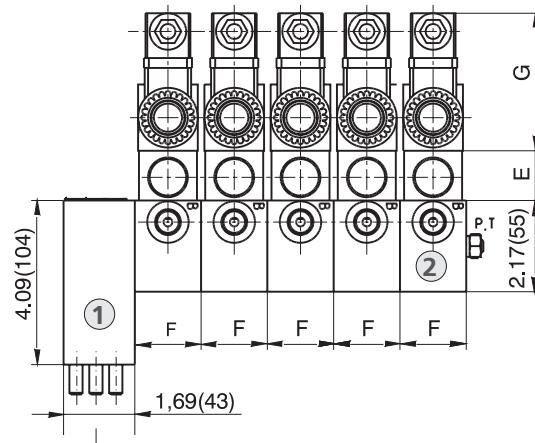

Tank Support
code 64-70 with holder
of power pack
configuration F

Valve Dimensions in [inch (mm)]
Base Plates and Parallel Plates

Configuration C
Size D02 (04),
D03 (06)

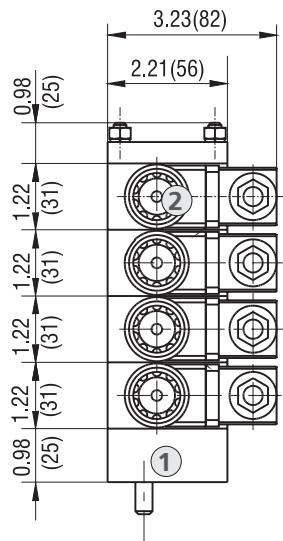


Configuration B
Size D02 (04),
D03 (06)

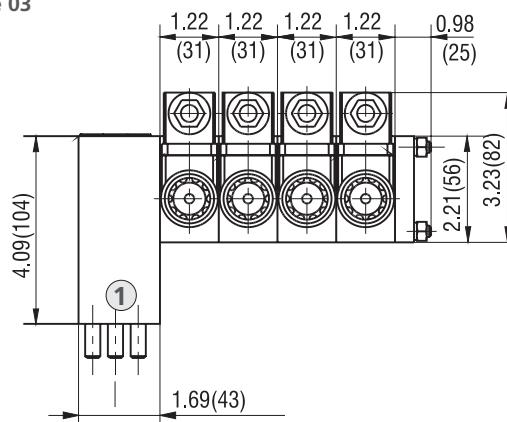

Parallel Plates (2)

see Datasheet PD04 (HA 0005)
PD06 (HA 0006)

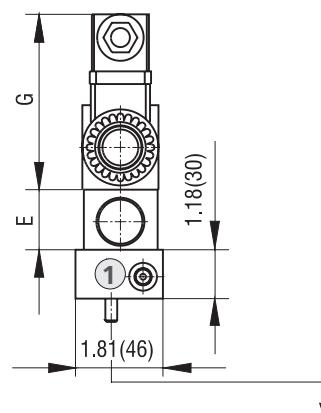
Configuration D
Size 03



Configuration E
Size 03

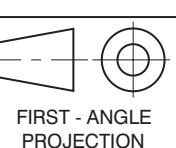


Configuration F
Size D02 (04),
D03 (06)



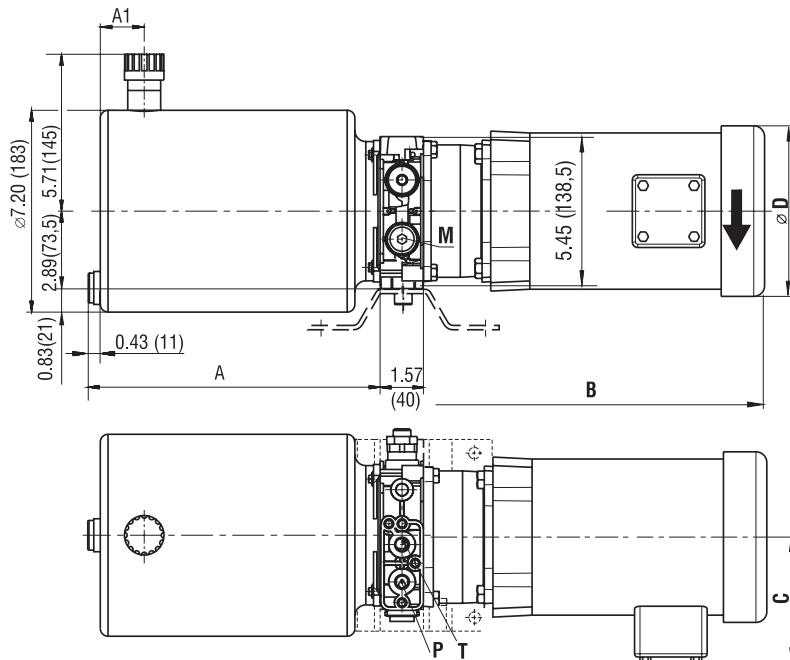
1 Base Plate
2 Parallel Plate

1 Base Plate

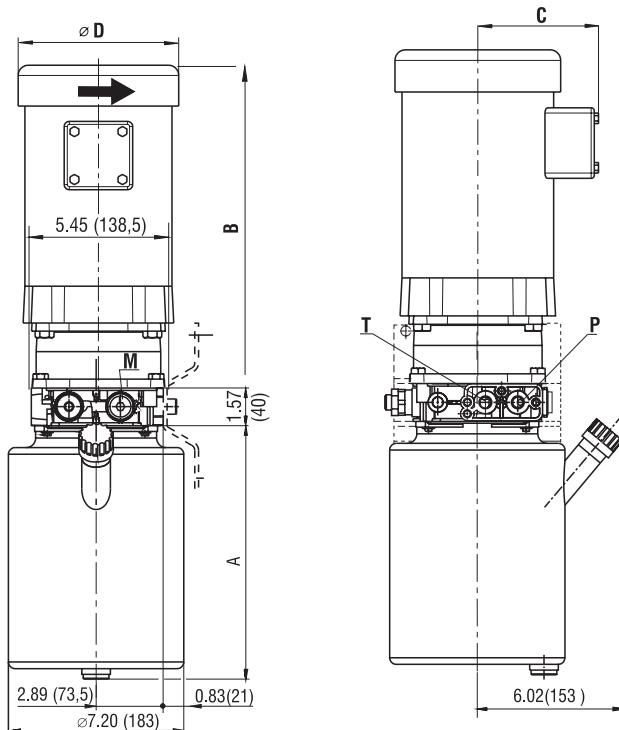


Thread of the connecting ports A, B, P, T, M - 9/16-18 UNF SAE J1926-1(-6SAE)

Dimension	E [in (mm)]						F [in (mm)]	G [in (mm)]
	Pressure switch	Reducing valves	Pressure relief valves	Pilot operated check valves cartridge	Check Valves	Flow Valves		
Size D02 (04)	1.38 (35)	1.18 (30)	1.38 (35)	1.18 (30)	1.18 (30)	1.18 (30)	1.57 (40)	3.11 (79)
Size D03 (06)	1.69 (43)	1.77 (45)	1.57 (40)	1.57 (40)	1.24 (31.4)	1.57 (40)	1.97 (50)	3.62 (92)

Tank Dimensions [inch (mm)]
Power pack with cylindrical steel tank - mounting position horizontal


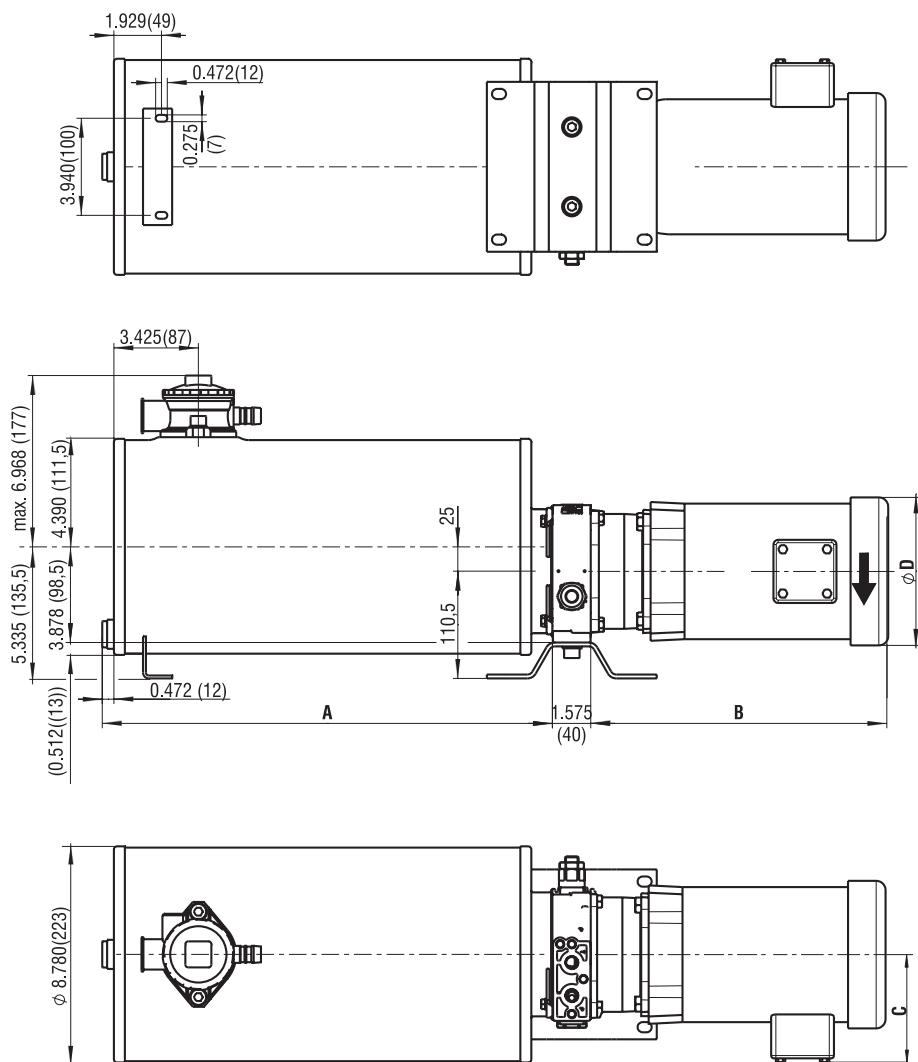
Code of the tank	Capacity in US gal [L]	Working volume US gal [L]	A [inch (mm)]	A1 [inch (mm)]
20 (steel)	1.585 (6)	0.977 (3.7)	10.59 (269)	1.57 (40)
22 (steel)	2.113 (8)	1.294 (4.9)	13.74 (349)	6.10 (155)
24 (steel)	2.641 (10)	1.614 (6.1)	16.89 (429)	7.68 (195)

Power pack with cylindrical steel tank - mounting position vertical


Code of the tank	Capacity in US gal [L]	Working volume US gal [L]	A [inch (mm)]
51 (steel)	1.585 (6)	0.898 (3.4)	269 (10.59)
53 (steel)	2.113 (8)	1.427 (5.4)	349 (13.74)
55 (steel)	2.641 (10)	1.955 (7.4)	429 (16.90)

Tank Dimensions in [inch (mm)]

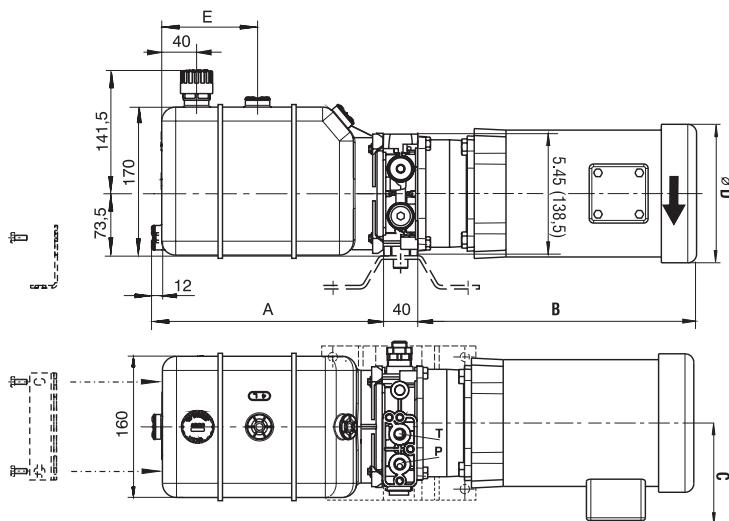
Power pack with DC electric motor



Code of the tank	Capacity in US gal [L]	Working volume US gal [L]	A [inch (mm)]
30 (steel)	1.58 (9)	1.98 (7.5)	11.97 (304)
31 (steel)	3.96 (15)	3.17 (12)	18.27 (464)
32 (steel)	6.60 (25)	5.28 (20)	28.50 (724)

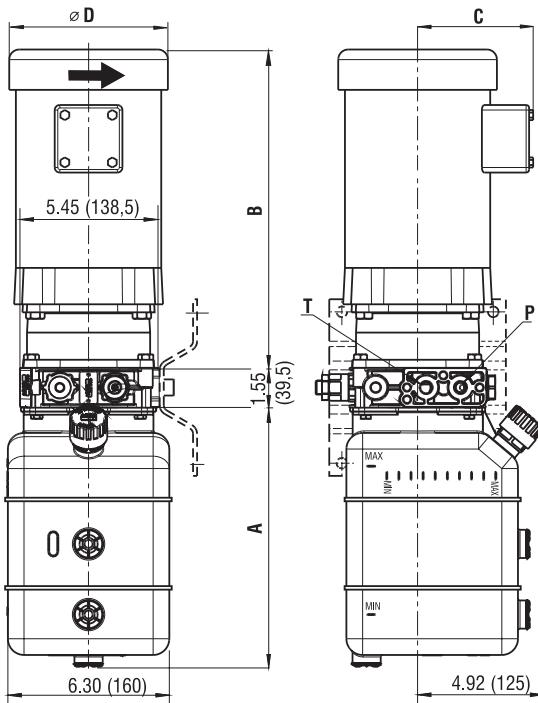
Tank Dimensions Dimensions in millimeters

Power pack with square plastic tank - mounting position horizontal
 Plastic tanks are not UV stable. Place the unit in the shade for outdoor application.



Code of the tank	Capacity in US gal [L]	Working volume US gal [L]	A [inch (mm)]	E [inch (mm)]
62 (plastic)	0.528 (2)	0.45 (1.7)	7.01 (178)	-
64 (plastic)	1.057 (4)	0.79 (3.0)	10.63 (270)	4.72 (120)
66 (plastic)	1.585 (6)	1.19 (4.5)	14.13 (359)	6.50 (165)
68 (plastic)	2.113 (8)	1.59 (6.0)	17.68 (449)	8.19 (208)
70 (plastic)	2.641 (10)	1.98 (7.5)	21.37 (543)	8.19 (208)

Power pack with square plastic tank - mounting position vertical
 Plastic tanks are not UV stable. Place the unit in the shade for outdoor application.

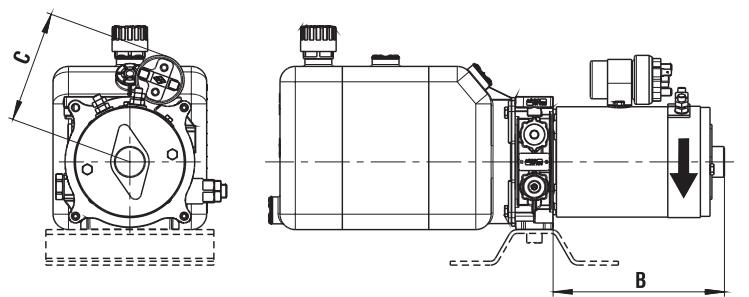
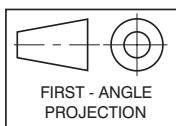


Code of the tank	Capacity in US gal [L]	Working volume US gal [L]	A [inch (mm)]
61 (plastic)	0.528 (2)	0.34 (1.3)	7.01 (178)
63 (plastic)	1.057 (4)	0.92 (3.5)	10.63 (270)
65 (plastic)	1.585 (6)	1.45 (5.5)	14.13 (359)
67 (plastic)	2.113 (8)	1.98 (7.5)	17.68 (449)
69 (plastic)	2.641 (10)	2.51 (9.5)	21.37 (543)

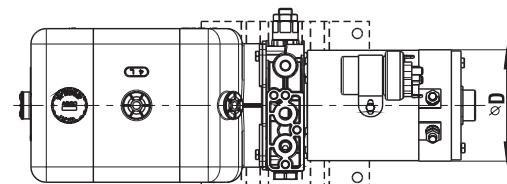
Tank Dimensions Dimensions in millimeters

Power pack with DC electric motor

Thread of the connecting ports P, T, M - 9/16-18 UNF
SAE J1926-1(-6 SAE)

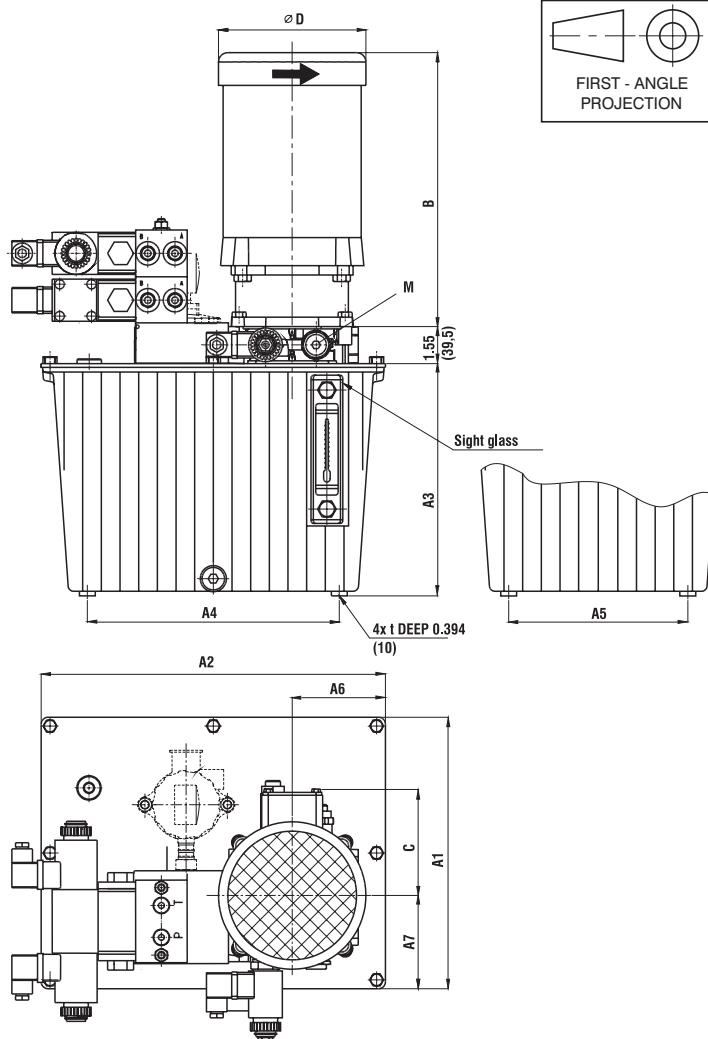


Dimensions B, C, D see Page 10.


Tank Dimensions Dimensions in millimeters

Power pack with die-cast aluminium tank
Configuration B

Thread of the connecting ports A, B, P, T, M - 9/16-18 UNF
SAE J1926-1(-6 SAE)



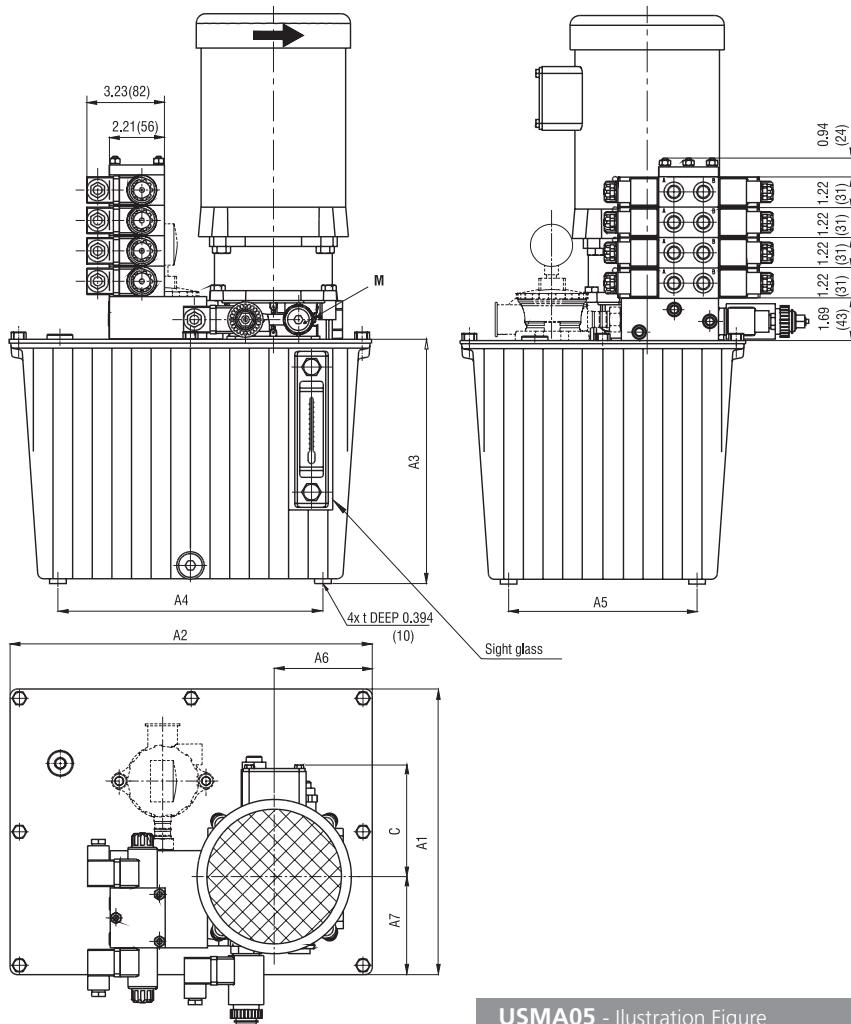
Note: all units with tank code 71-74 shipped with sight glass and drain plug

Code of the tank	Capacity in US gal (L)	Working volume US gal [L]	A1	A2	A3	A4	A5	A6	A7	t
			in (mm)							
71 (Al)	3.17 (12)	2.64 (10)	9.53 (242)	12.28 (312)	8.82 (224)	8.86 (225)	6.10 (155)	4.41 (112)	3.58 (91)	M8
72 (Al)	5.28 (20)	4.23 (16)	11.46 (291)	14.53 (369)	10 (254)	10.63 (270)	7.56 (192)	4.13 (105)	5.35 (136)	M8
73 (Al)	7.93 (30)	6.60 (25)	13.43 (341)	19.33 (491)	11.42 (290)	12.83 (326)	6.93 (176)	4.53 (115)	6.14 (156)	M10
74 (Al)	11.62 (44)	10.30 (39)	16.69 (424)	20.67 (525)	12.60 (320)	13.43 (341)	9.49 (241)	4.53 (115)	6.93 (176)	M10

Power Pack Dimensions in millimeters

Power pack with die-cast aluminium tank and horizontal stacking assembly RPEK1-03
Configuration E

With the model RPEK1-03 of the vertical stacking assembly the connecting ports A, B, M are only provided with threads 9/16-18 UNF; SAE J1926-1 (6 SAE)- orientation of ports is evident from the picture.



Code of the tank	71	72	73	74
	Al			
Capacity in US gal [L]	3.17 (12)	5.28 (20)	7.93 (30)	11.62 (44)
Working volume US gal [L]	2.64 (10)	4.23 (16)	6.60 (25)	10.30 (39)
A1	9.53 (242)	11.46 (291)	13.43 (341)	16.69 (424)
A2	12.28 (312)	14.53 (369)	19.33 (491)	20.67 (525)
A3	8.82 (224)	10 (254)	11.42 (290)	12.60 (320)
A4	8.86 (225)	10.63 (270)	12.83 (326)	13.43 (341)
A5	6.10 (155)	7.56 (192)	6.93 (176)	9.49 (241)
A6	4.41 (112)	4.13 (105)	4.53 (115)	4.53 (115)
A7	3.58 (91)	5.35 (136)	6.14 (156)	6.93 (176)
t	M8	M8	M10	M10

USMA05 - Illustration Figure
