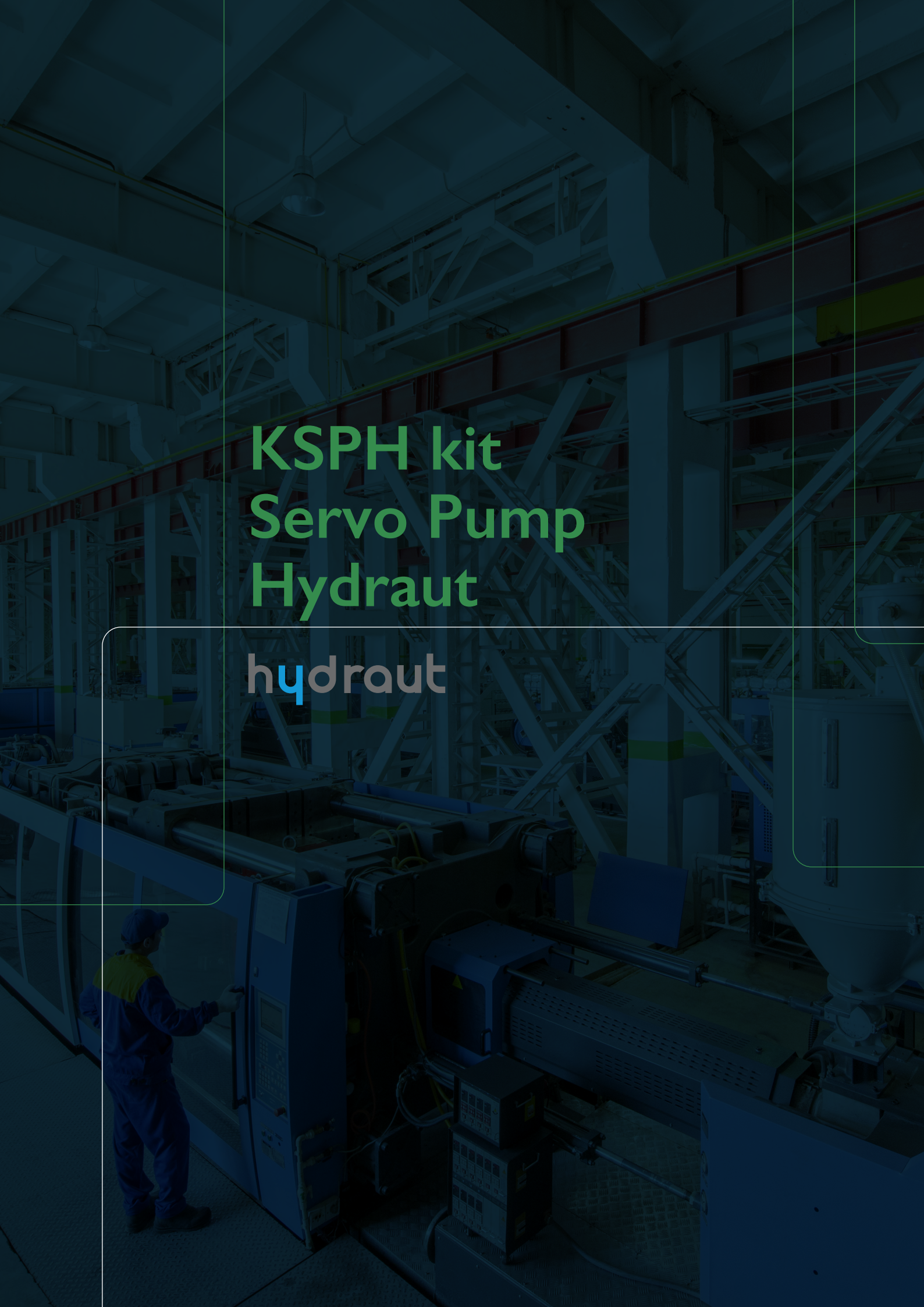
KSPH kit Servo Pump Hydraut

PLUG & PLAY ELECTRO-HYDRAULIC
HYBRID SYSTEM FOR ENERGY SAVING

hydraut



KSPH kit
Servo Pump
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Summary

ELECTRO-HYDRAULIC HYBRID SYSTEM

In the field of industrial automation, a system that combines an electric motor with a hydraulic pump is known as a “servo pump” or, more commonly, as an “electro-hydraulic hybrid system.”
In a servo-pump system, the mechanical movement of the shaft is piloted by an inverter, an electric (servo) motor, coupled to a pump group that constitutes the core of a hydraulic plant.

Hydraut has developed the **KSPH system** to meet the growing demand for energy efficiency expressed by OEMs, system integrators, and end-users. This “turnkey” solution significantly reduces the time required for system selection and implementation.

The KSPH Hydraut is based on standard motor-pump assemblies, configured into standardized packages that include:

1. An inverter drive.
2. A high-power-density brushless motor.
3. An internal gear pump.

KEY BENEFITS

The maximum advantages are achieved in machinery or systems with operational pauses during their working cycle, where active hydraulic energy is not required. The higher the ratio of “pause” time to “operation” time, the greater the potential benefits. Depending on the type of machine, the configured packages can guarantee:

- **Energy savings of up to 80%**
- **Optimized flow and pressure control** for each phase of the production process
- Simplified hydraulic systems, resulting in reduced energy consumption and maintenance costs
- Reduced size and installation space requirements
- **Noise reduction of up to 20 dB** during operation, with the possibility of eliminating noise entirely during pauses
- Increased service life of the pump and hydraulic fluid
- High overall system performance
- Reduced environmental impact and lower fluid overheating

PLUG & PLAY SOLUTION AND FAST IMPLEMENTATION

The KSPH electro-hydraulic hybrid system is designed as a plug-and-play solution, ensuring quick installation and commissioning. Its standardized configuration simplifies the process of selecting the most suitable package, significantly reducing project implementation times.

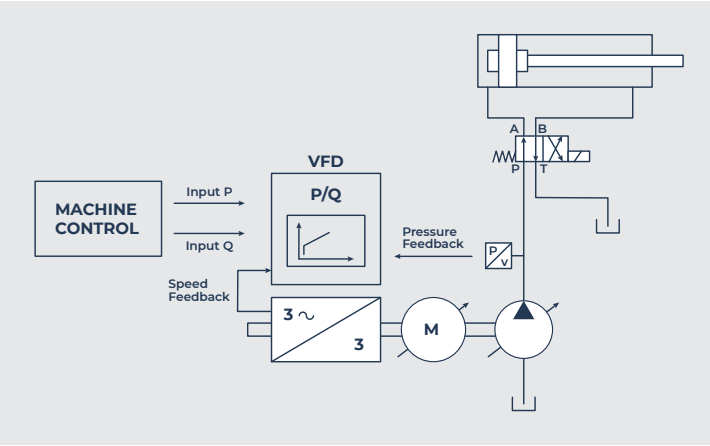
EASY CUSTOMIZATION

Choosing the ideal package for specific requirements is straightforward, thanks to intuitive tools available in the technical section below. With preconfigured packages tailored to typical application parameters, the KSPH offers a flexible yet efficient solution for modern hydraulic needs.

MAXIMIZING EFFICIENCY

The KSPH servo-pump is designed to optimize the efficiency of the power expressed by the motor-pump group.

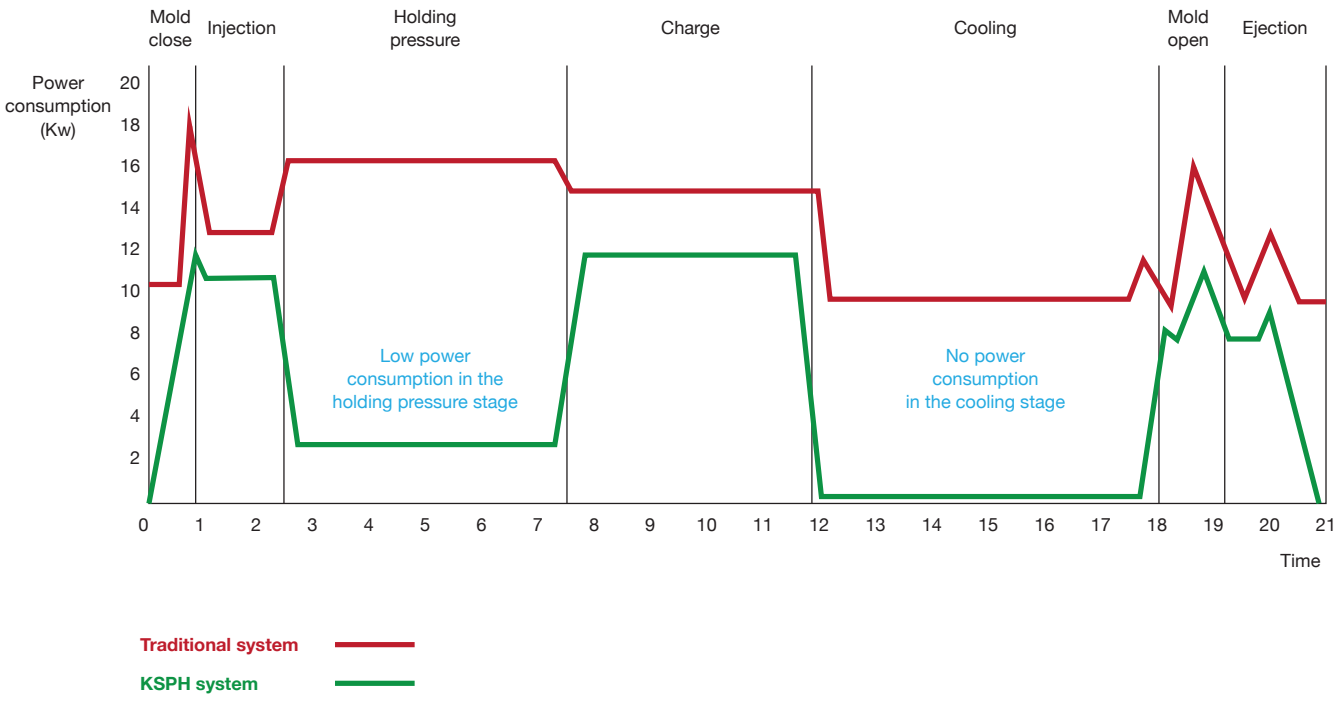
Thanks to the rotational speed modulation of the fixed displacement internal gear pump, the KSPH system enables the creation of a motor-pump group with a variable flow rate (Q) of high performance and volumetric efficiency.



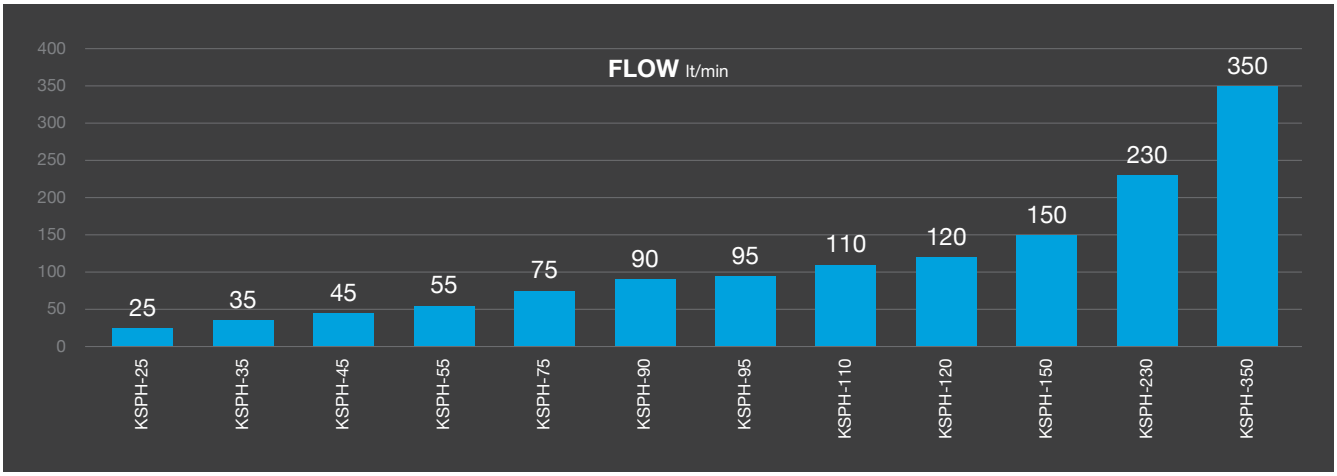
Thanks to integrated pressure control (P), it is possible to cross check the pressure requirements of each phase with the instant pressure of the plant. Consequently, it is possible to verify the Q flow rate generated by the group to supply the required flow rate values at each specific phase.

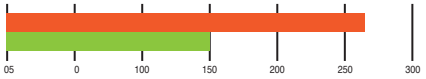
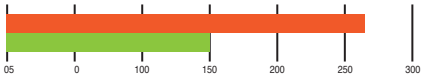
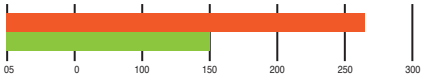
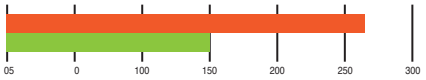
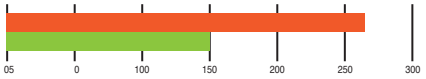
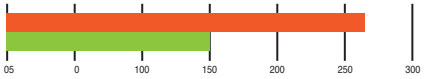
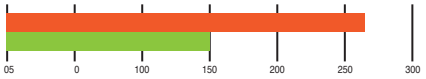
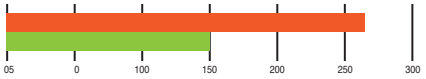
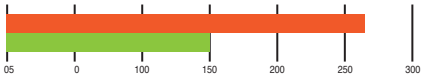
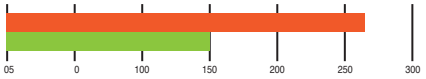
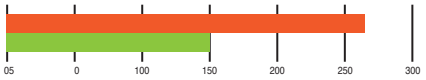
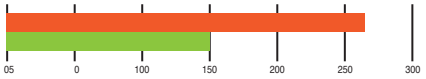
This control technique, known in jargon as P/Q, is integrated in the firmware of the inverter starter and allows for:

- safeguarding of the machine, set-ups and workpiece, thereby preventing damage caused by excess operating pressure;
- fewer components required to control pressure in each phase, with the consequential simplification of the circuit;
- reduction of excess input power because the power supply is limited to the exact requirements of each phase;
- minimization of necessary rotation ranges, both during pressure control and during machine cycle standstills.



KSPH: STANDARD PACKAGE COMPARISON



KIT NAME	INVERTER POWER kW	ToT POWER kW	FLOW RATE MAX lt/min	FLOW RATE Min lt/min	PRESSURE RANGE BAR GREEN CONTINUOUS SERVICE S1 RED SHORT TIME DEPENDS ON THE CYCLE	MAX PRESS. S1	MAX PRESS. SHORT TIME
KSPH-25	11	10.5	25	8		150 bar	265 bar
KSPH-35	11	12	35	8		150 bar	265 bar
KSPH-45	15	19.3	45	5		150 bar	265 bar
KSPH-55	18.5	22	55	12		150 bar	265 bar
KSPH-75	22	24.1	75	8		150 bar	265 bar
KSPH-90	22	22	90	7		150 bar	265 bar
KSPH-95	30	31.5	95	10		150 bar	265 bar
KSPH-110	30	30	110	8		150 bar	265 bar
KSPH-120	45	35.6	120	13		150 bar	265 bar
KSPH-150	45	42	150	13		150 bar	265 bar
KSPH-230	75	92.1	230	25		150 bar	265 bar
KSPH-350	90	75	350	25		150 bar	265 bar

Standardized packages are included in the catalog to help the end user choose an already defined configuration.
For custom and/or special configurations, our engineering department is available to develop custom systems

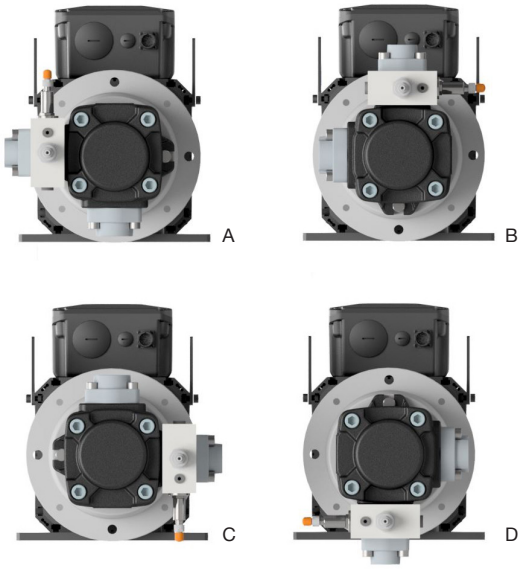
CODE SELECTION

KSPH	MAX FLOW	SUCTION POSITION	SAFETY MANIFOLD OPTION	FIELDBUS	P-MAX @100% of demanded signal pressure reference	Q-MAX @100% of demanded signal flow reference	SPECIAL VERSION
KIT SERVO PUMP HYDRAUT	25	A = lower	**NB** standard manifold with pressure transducer and relief safety valve	**AN** = analog signal	**NP** P/Q control is not required, ONLY FLOW CONTROL OR	**FROM 50% OF MAX FLOW** (expressed in lt/min)	**DP** double pump version
	35			**BC** = CANopen			
	45						
	55	B = right	**STD** standard manifold with pressure transducer and relief safety valve	**BL** = CANlink	from **50 bar** to **265 bar**		
	75						
	90						
	95	C = upper		**BP** = profibus dp		example **- 60 -** (with 10V =100% the system limit at max flow at 60 lt/min	
	110						
	120		**LKG** As standard manifold plus on-off valve for leakage-pump cooling function	**ETH** = ethercat	example **- 225 -** (with 10V =100% the system limit at max pressure at 225 bar)		
	150	D = left					
	230			**MD** = modbus RS485			
	350						

EXAMPLES: KSPH-75-A-STD-AN-225-60

KSPH	75	A	STD	AN	225	60	SPECIAL VERSION
KIT SERVO PUMP HYDRAUT	75 lt/min	A = lower	**STD** standard manifold with pressure transducer and relief safety valve	**AN** = analog signal	example **- 225 -** (with 10V =100% the system limit at max pressure at 225 bar)	example **- 60 -** (with 10V =100% the system limit at max flow at 60 lt/min	**DP** double pump version

SUCTION POSITION EXAMPLE



TYPICAL CONFIGURATION

** If included in the scope of supply*

MACHINE CYCLE ANALYSIS – APPLICATION FORMULAS

KIT SELECTION		FLOW MAX	CONTINUOUS PRESSURE	MAX. PRESSURE FOR SHOT TIME

MACHINE CYCLE ANALYTICS					
PHASE N°	PHASE NAME	TIME IN SEC.	PRESSURE REQUEST	FLOW REQUEST	OVERLOAD see the overload chart
1	LOADING PIECE	2	40	65	
2	LOCK PIECE	1	70	5	
3	TABLE ROTATION	3	20	10	
4	AXIS 1 APPROACH	10	80	60	
5	AXIS 1 PRE-PRESSURING	2	150	20	
6	PRESS PHASE AXIS1	10	225	40	
7	MOLD EXTRACTION	5	80	65	
8	UNLOADING PIECE	2	40	40	
9	PAUSE	20	20	2	
MACHINE CYCLE TOTAL TIME		55			

ASSESSMENT OF OVERLOAD PEAKS

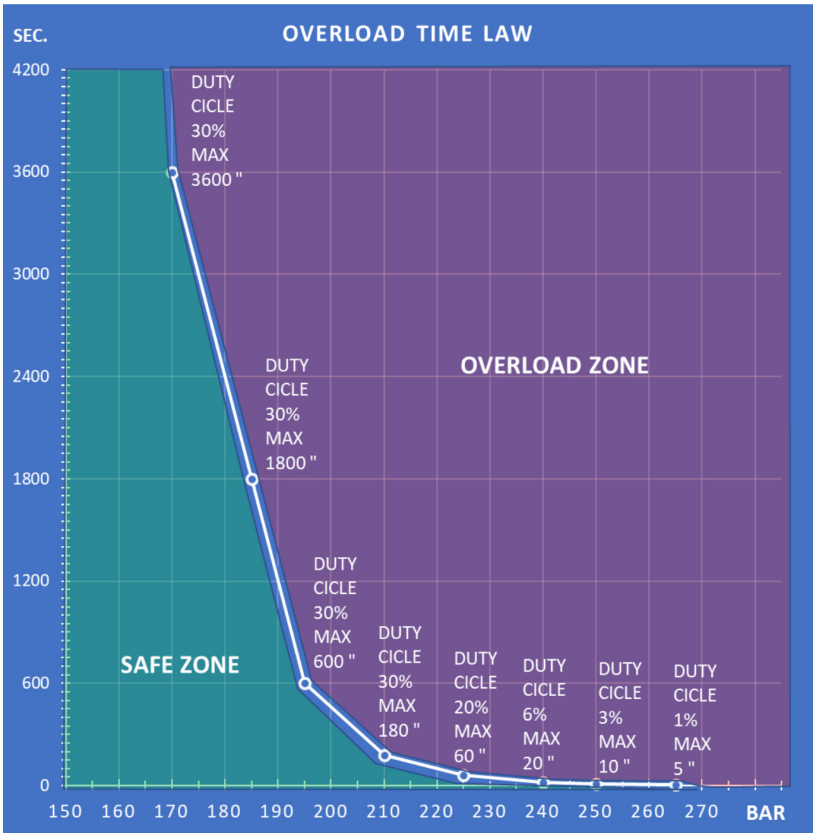
To understand whether the KSPH system is suited to your plant, it is necessary to verify the overload peakes required by the machine cycle. The value of the duty cycle overload is obtainable from the pressure value shown on the chart and by performing a calculation based on the machine cycle total, using the following formula:

$$\text{DUTY CICLE OVERLOAD} = \frac{\sum T\ phase\ @\ 210\ \text{BAR}}{\sum T\ all\ phase} = \leq \text{CHART \%}$$

Example given in the chart: the use of the OVERLOAD PHASE is 18%
[PRESS PHASE AXIS1 (10 Sec.) / MACHINE CYCLE TOTAL TIME (55 Sec.) = 18%]

NOTE:
The control system of the inverter counts the overload peakes and totalizes them. If they exceed the maximum threshold, this will cause a machine stoppage.
Every 5 minutes, the inverter rests the alarm counter. To avoid a machine blockage, it is necessary to check that the sum total of the time in OVERLOAD pertaining to various machine cycles in the 5-minute window is inferior to the maximum time indicated in the chart.

Data checked at the ambiance temperature of the electric panel 40°C.



HYDRAULIC SOLUTIONS ON THE MARKET

TRADITIONAL SOLUTION: Constant rotational speed motor and fixed displacement pump.

- Cost-effective solution;
- The motor-pump group supplies maximum pressure P, and maximum flow rate at all times. Any excess flow rate not required by the single processes is dissipated in the form of heat by the maximum pressure safety valve. The pump is noisy.

EVOLUTION OF THE TRADITIONAL SOLUTION: Constant rotational speed motor and variable displacement pump.

- The required flow rate is supplied in each single phase of the machine cycle.
- The internal inertia of the moving parts, combined with the internal discharge of the pump flow rate, entails a "basic" energy consumption over and above the consumption of each single process. Also in this case, the pump is noisy.

SERVOSYSTEM SOLUTION HYDRAUT KSPH: Brushless variable rotation motor and internal gear fixed displacement pump.

- The required flow rate is supplied in each single phase of the machine cycle, pump performance compares favourably with that of the variable displacement pump. It is possible to stop the motor during standstill and therefore reduce consumption in the overall machine cycle.
- It is necessary to install a Drive inverter on the machine panel.

TRADITIONAL SOLUTION
fixed displacement pump

EVOLUTION OF THE TRADITIONAL SOLUTION
variable displacement pump

SERVOSYSTEM SOLUTION
Hydraut KSPH

In all three solutions, **power may be calculated for each phase** using the following formula:

$$\text{kW PHASE IN TIME} = \left(\frac{P\ bar * Q\ \frac{lit}{min}}{612 * \eta} \right) * \textit{Time phase (in sec.)}$$

Once all the kilowatts in the temporal unit of each phase have been calculated, it is then possible to obtain the energy consumption of the machine using the following formula:

$$\text{kWh Machine Cycle: } = \left(\frac{\sum \textit{kwatt phase in time}}{\textit{total machine cycle}} \right)$$

Having analyzed the machine cycle in the example and in the form provided, we now present a comparative analysis of energy consumption by solution type examined:

ENERGY CONSUMPTION COMPARISON FOR DIFFERENT SOLUTIONS (MACHINE CYCLE IN EXAMPLE)	kW/HR		
	5,56 kW/h	6,91 kW/h	23,20 kW/h
	HYDRAUT SERVO SOLUTION	VARIABLE DISPLACEMENT PUMP	CONVENTIONAL FIXED DISPLACEMENT PUMP
	HYDRAUT SERVO SOLUTION ENERGY SAVING	-20%	-76%

PUMPS TECHNICAL FEATURES

SINGLE AND DOUBLE INTERNAL GEAR PUMPS

MODEL CODE - SINGLE PUMPS

HG	1	-40	-01	R	-V	P	C

PUMP

Internal gear pump	HG

CODE

Displacement 8…20	0
Displacement 25…63	1
Displacement 80…160	2

SIZE

Displacement (cc/rev)									
8	10	13	16	20	25	32	40	50	63
80	100	125	145	160					

CODE

	01

DIRECTION OF ROTATING (VIEWED ON SHAFT END)

CW	R

SEAL TYPE

FKM - Viton standard	V
NBR	W

SHAFT

Key shaft	P
Splined shaft	S

MOUNTING FLANGE

SAE 2 holes	C

PUMPS TECHNICAL FEATURES

SINGLE AND DOUBLE INTERNAL GEAR PUMPS

MODEL CODE - DOUBLE PUMPS

HG	2	1	-100	-50	01	R	P	V	C	10

PUMP

Internal gear pump	HG

CODE

Displacement 8…20	0
Displacement 25…63	1
Displacement 80…160	2

CODE

Displacement 8…20	0
Displacement 25…63	1
Displacement 80…160	2

SIZE

cc/rev					
8	10	13	16	20	0
25	32	40	50	63	1
80	100	125	145	180	2

SIZE

cc/rev					
8	10	13	16	20	0
25	32	40	50	63	1
80	100	125	145	180	2

CODE

	01

DIRECTION OF ROTATING (VIEWED ON SHAFT END)

CW	R

SEAL TYPE

FKM - Viton standard	V
NBR	W

SHAFT

Key shaft	P
Splined shaft	S

MOUNTING FLANGE

SAE 2 holes	C

DOUBLE PUMP STYLE

Intermediate housing with common or separate suction ports	-
Separate suction ports w/o intermediate housing	S

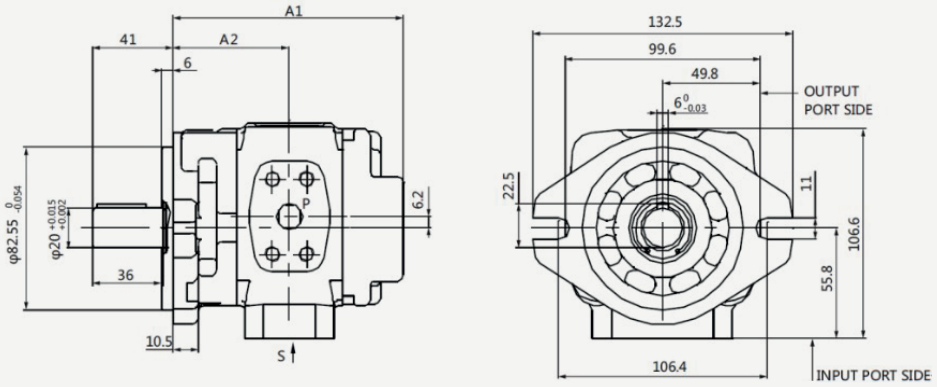
TECHNICAL DATA

FRAME SIZE	HG0				
Size	8	10	13	16	20
Weight kg	4,6	4,8	4,9	5,2	5,6
"Speed range 1) ... Nmin rpm	600	600	600	600	600
Nmax rpm"	3000	3000	3000	3000	3000
Displacement cm3	8,2	10,2	13,3	16,0	20,0
Flow l/min 2)	12,2	15,1	19,7	23,7	29,6
"Moment of inertia (around drive axis) J kgm2"	0,00018	0,00019	0,00025	0,00027	0,00037
"Operating pressure, absolute – Input p bar"	0.8 to 2 (shortly, upon start 0.6 bar)				
"Nominal pressure pN bar – Output, continuous HLP fluid	315	315	315	315	250
Special fluid 3)"	220	220	220	220	175
"Max intermittent pressure 4) pmax bar - HLP fluid	350	350	350	350	300
Special fluid 3)"	245	245	245	245	210

FRAME SIZE	HG1				
Size	25	32	40	50	63
Weight kg	14,5	15	16	17	18,5
"Speed range 1) ... Nmin rpm	200	200	200	200	200
Nmax rpm"	3000	3000	3000	3000	3000
Displacement cm3	25,3	32,7	40,1	50,7	63,7
Flow l/min 2)	37,5	48,5	60,9	75,1	94,4
"Moment of inertia (around drive axis) J kgm2"	0,00045	0,00055	0,00066	0,00081	0,00237
"Operating pressure, absolute – Input p bar"	0.8 to 2 (shortly, upon start 0.6 bar)				
"Nominal pressure pN bar – Output, continuous HLP fluid	315	315	315	315	315
Special fluid 3)"	220	220	220	220	220
"Max intermittent pressure 4) pmax bar - HLP fluid	350	350	350	350	350
Special fluid 3)"	245	245	245	245	245

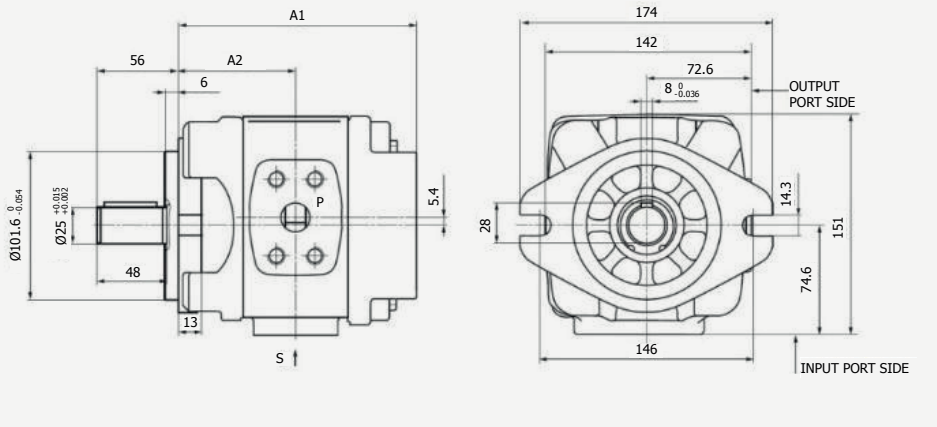
FRAME SIZE	HG2				
Size	80	100	125	145	160
Weight kg	43,5	45,5	48	50	52
"Speed range 1) ... Nmin rpm	200	200	200	200	200
Nmax rpm"	3000	3000	3000	3000	3000
Displacement cm3	81,4	100,2	125,3	145,2	162,8
Flow l/min 2)	120,6	148,5	185,7	215,2	241,3
"Moment of inertia (around drive axis) J kgm2"	0,0028	0,00329	0,00407	0,00442	0,00506
"Operating pressure, absolute – Input p bar"	0.8 to 2 (shortly, upon start 0.6 bar)				
"Nominal pressure pN bar – Output, continuous HLP fluid	315	315	315	250	210
Special fluid 3)"	220	220	220	175	260
"Max intermittent pressure 4) pmax bar - HLP fluid	350	350	350	280	n/a
Special fluid 3)"	245	245	245	195	n/a

INSTALLATION DIMENSIONS: HG0-※-01R-V※C



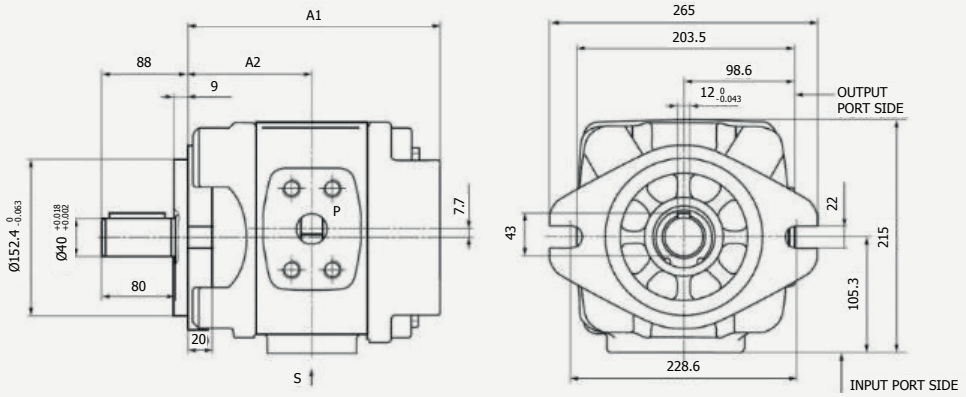
HG0				
SERIES	**A1**	**A2**	**S**	**P**
8	102,5	54	SAE 3000 3/4"	SAE 3000 1/2"
10	106,5	56	SAE 3000 1"	
13	113	59,3		
16	118,5	62		
20	126,5	66	SAE 3000 1"1/4	SAE 3000 3/4"

INSTALLATION DIMENSIONS: HG1-※-01R-V※C



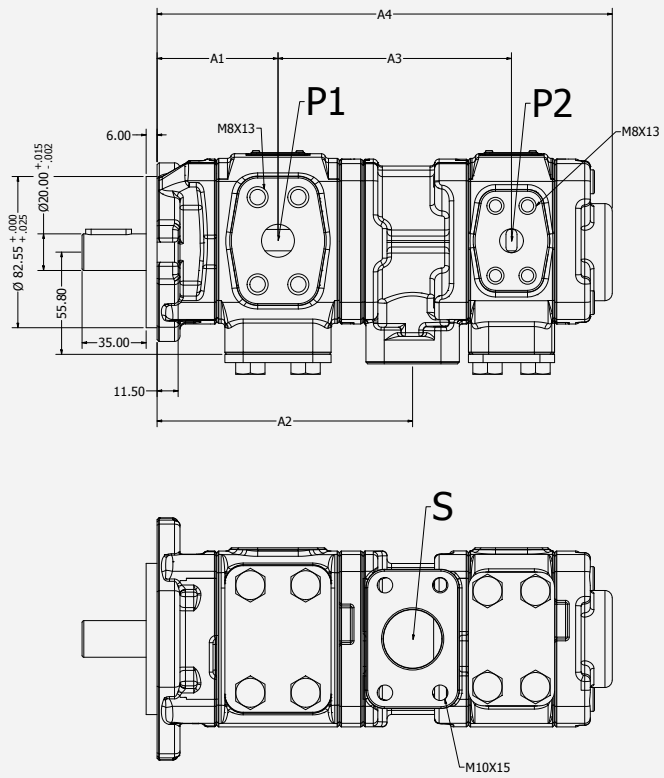
HG0				
SERIES	**A1**	**A2**	**S**	**P**
25	139	73	SAE 3000 1"1/4	SAE 3000 3/4"
32	146	76,5		
40	153	80		SAE 3000 1"
50	163	85		
63	177	92		

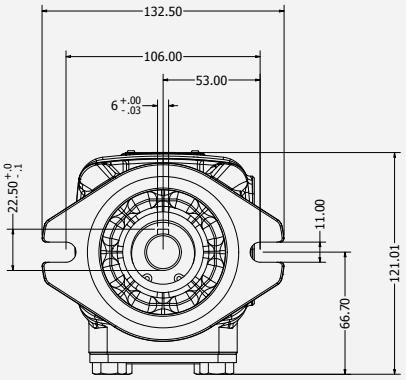
INSTALLATION DIMENSIONS: HG2-※-01R-V※C



HG0				
SERIES	**A1**	**A2**	**S**	**P**
80	199	109,5	SAE 3000 2"	SAE 3000 1"1/2
100	208	114		
125	220	120	SAE 3000 2" 1/2	SAE 6000 1"1/2
145	229,5	125		
160	238	129	SAE 3000 3"	

INSTALLATION DIMENSIONS: HG00-※-※※※※※※



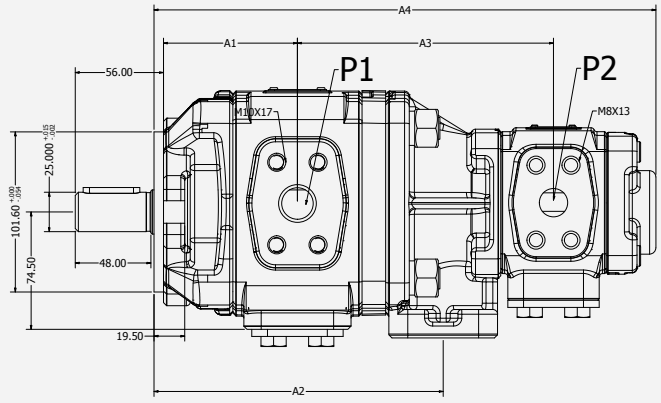


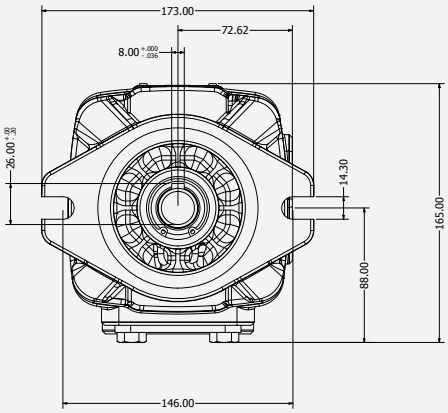
Available configurations with separate or common suction port.
In case of separate suction ports, ports sizes are the same as for the single version

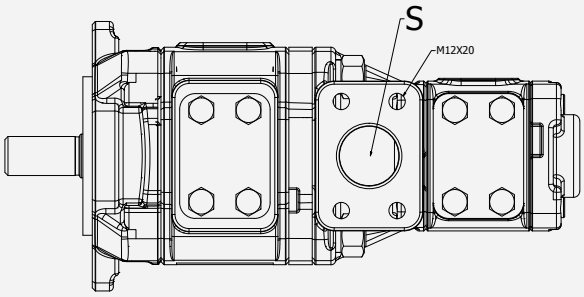
SIZE P1	A1	A2	SIZE P2									
			8		10		13		16		20	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
mm												
8	58,2	118,75	118,3	232,5	120	237	122,8	237	123,3	242,5	127,3	250,5
10	60,75	128,75	118,2	237,5	121,2	242,5	123,2	242	124,6	247,5	128,6	255,5
13	61	129,75	119,3	238,5	122,5	242	124,5	241,5	125,5	248,5	129,6	249,5
16	62	133,25	120,5	243,5	123,5	247,5	125,5	247	126,5	254	130,5	255
20	66	141,25	121	247,5	127,5	248,5	129,5	255	130,1	260,5	137,5	268,5

PORTS DIMENSIONS		
SIZE	P1/P2	S
8	SAE 3000 1/2”	SAE 3000 1 1/4”
10		
13		
16		
20	SAE 3000 3/4”	

INSTALLATION DIMENSIONS: HG10-※-※※※※※







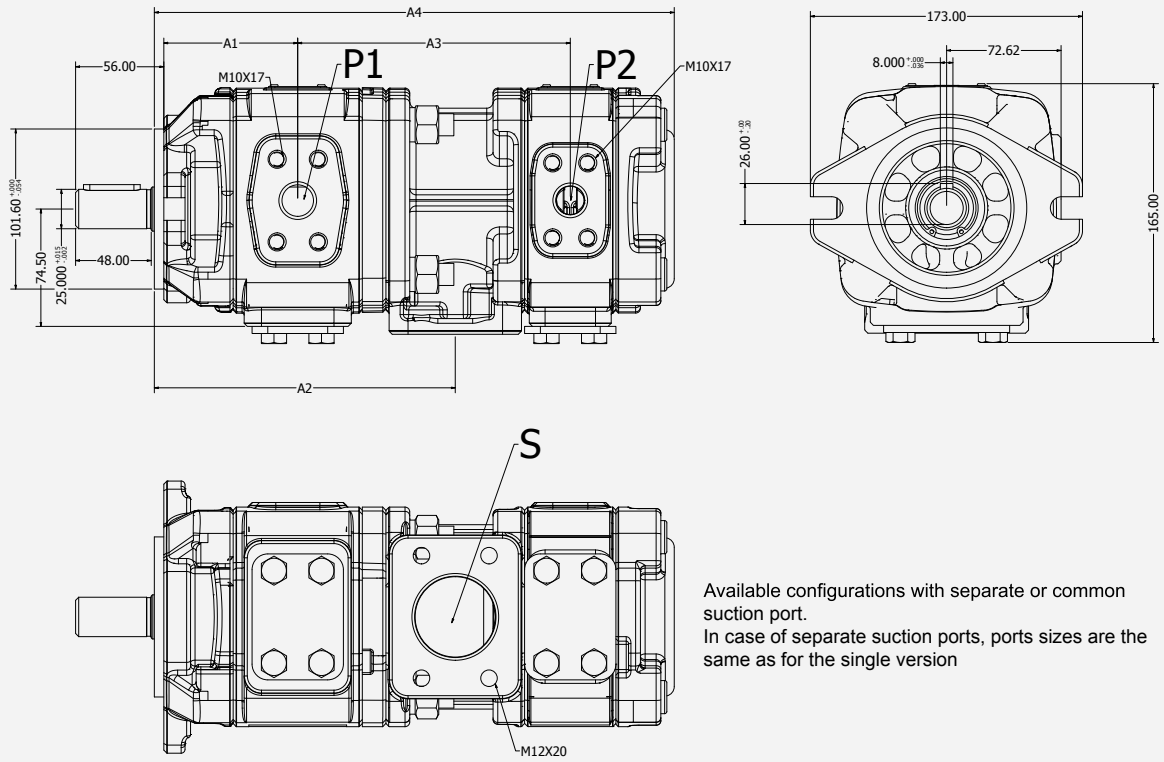
Available configurations with separate or common suction port.
In case of separate suction ports, ports sizes are the same as for the single version

SIZE P1	A1	A2	SIZE P2									
			8		10		13		16		20	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
mm												
32	76,5	158,5	225,5	364	216	357	143,3	278	146	283,5	150	291,5
40	80	165,5	232,5	374,5	226	367,5	146,8	285	149,5	290,5	153,5	298,5
50	85	175,5	242,5	389,5	233	382,5	151,8	295	154,5	300,5	158,5	308,5
63	92	189,5	244,5	398,5	247	403,5	158,8	309	161,5	314,5	165,5	322,5

PORTS DIMENSIONS		
SIZE	P1	S
25	SAE 3000 3/4”	SAE 3000 1 1/2”
32		
40		
50	SAE 3000 1”	
63		

PORTS DIMENSIONS	
SIZE	P2
8	SAE 3000 1/2”
10	
13	
16	
20	SAE 3000 3/4”

INSTALLATION DIMENSIONS: HG11-※-※※※※※



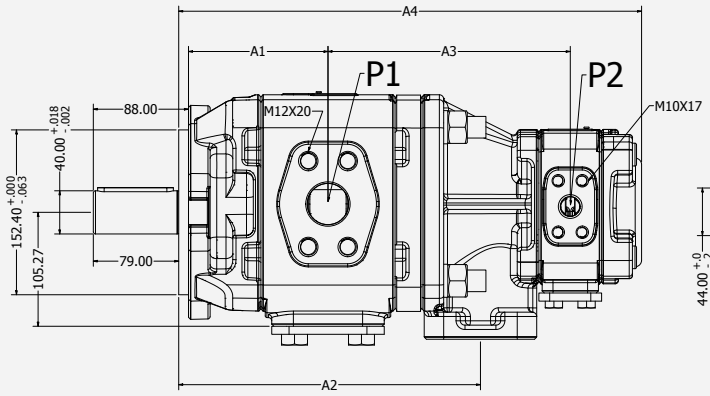
Available configurations with separate or common suction port.
In case of separate suction ports, ports sizes are the same as for the single version

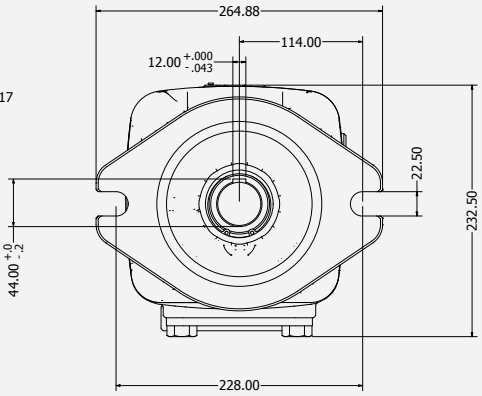
SIZE P1	A1	A2	SIZE P2									
			25		32		40		50		63	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
mm												
25	73	159	157	296	-	-	-	-	-	-	-	-
32	76,5	166	160,5	303	164	310	-	-	-	-	-	-
40	80	173	164	310	167,5	317	171	324	-	-	-	-
50	85	183	169	320	172,5	327	176	334	181	344	-	-
63	92	197	176	334	179,5	341	183	348	188	358	195	372

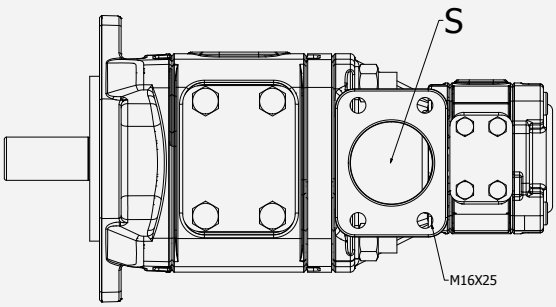
PORTS DIMENSIONS		
SIZE	P1	S
25	SAE 3000 3/4”	SAE 3000 2”
32		
40	SAE 3000 1”	
50		
63		

PORTS DIMENSIONS	
SIZE	P2
25	SAE 3000 3/4”
32	
40	SAE 3000 1”
50	
63	

INSTALLATION DIMENSIONS: HG21-※-※※※※※







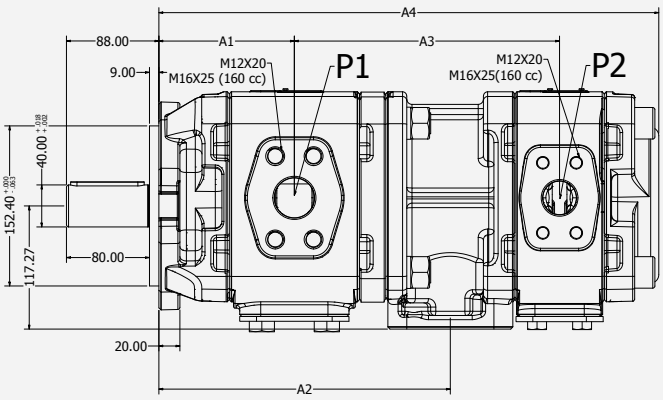
Available configurations with separate or common suction port.
In case of separate suction ports, ports sizes are the same as for the single version

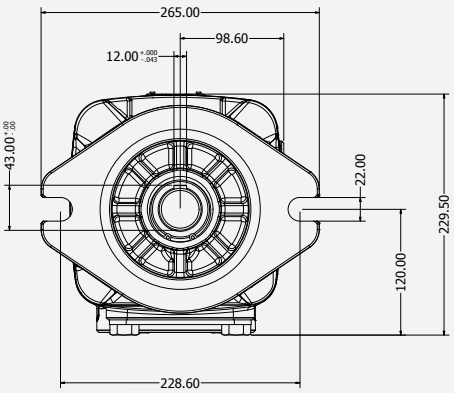
SIZE P1	A1	A2	SIZE P2									
			25		32		40		50		63	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
mm												
63	105,5	221	196,5	368	200	375	203,5	382	208,5	392	215,5	406
80	109,5	229	200,5	376	204	383	207,5	390	212,5	400	219,5	414
100	114	238	205	385	208,5	392	212	399	271	409	224	423
125	120	250	211	397	255,5	445	259	452	264	462	271	476
160	129	268	220	415	223,5	422	227	429	232	439	239	453

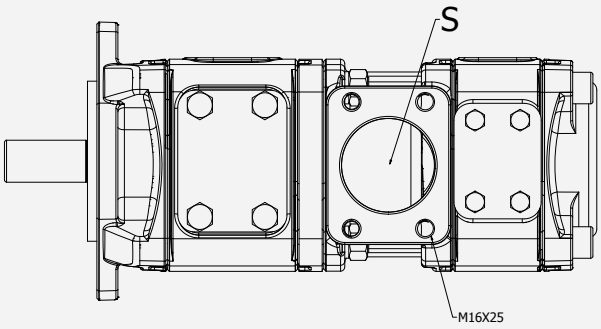
PORTS DIMENSIONS		
SIZE	P1	S
63	SAE 3000 1”	SAE 3000 3”
80	SAE 3000 1 1/2”	
100		
125	SAE 6000 1 1/2”	
160		

PORTS DIMENSIONS	
SIZE	P2
25	SAE 3000 3/4”
32	
40	SAE 3000 1”
50	
63	

INSTALLATION DIMENSIONS: HG22-※-※※※※※







Available configurations with separate or common suction port.
In case of separate suction ports, ports sizes are the same as for the single version

SIZE P1	A1	A2	SIZE P2											
			63		80		100		125		145		160	
			A3	A4	A3	A4	A3	A4	A3	A4	A3	A4	A3	A4
mm														
63	105,5	228,5	221	417	-	-	-	-	-	-	-	-	-	-
80	109,5	236,5	225	425	229	433	-	-	-	-	-	-	-	-
100	114	245,5	229,5	434	233,5	442	233,5	451	-	-	-	-	-	-
125	120	257,5	235,5	446	239,5	454	244	463	250	475	-	-	-	-
145	124,5	267	204,3	455,5	244,5	463,5	248,8	472,5	254,8	484,5	259,5	494	-	-
160	129	275,5	244,5	464	247,5	472	253	481	259	493	493	502,5	268	511

PORTS DIMENSIONS		
SIZE	P1	S
63	SAE 3000 1”	SAE 3000 3 1/2”
80	SAE 3000 1 1/2”	
100		
125	SAE 6000 1 1/2”	
145		
160		

PORTS DIMENSIONS	
SIZE	P2
63	SAE 3000 1”
80	SAE 3000 1 1/2”
100	
125	SAE 6000 1 1/2”
145	
160	

INVERTER TECHNICAL FEATURES

DRIVE GENERAL SPECIFICATIONS		DRVHY-***-RES-S00												
SIZE		025	32	037	045	060	075	091	112	150	176	210	253	304
FRAME SIZE		T5				T6		T7		T8			T9	
DRIVE INPUT	Input voltage	THREE-PHASE 380 to 480 Vac -15% to + 10%												
	Rated current A	36,3	45,1	49,5	59	57	69	89	106	139	164	196	240	287
	Power Capacity kVA	30	39	45	54	52	63	81	97	127	150	179	220	263
	Rated input frequency													
DRIVE OUTPUT	Motor size kW													
	Output current A													
	Default carrier frequency KhZ													
	Overload capacity	150% for 60 sec % 180% for 2 sec												
	Max output voltage	THREE-PHASE 380 to 480 Vac (proportional to input voltage)												
	Max output frequency	300 Hz												
BRAKE RESISTOR	Recommended power kW	0,8	1,0	1,3	1,5	2,5	3,7	4,5	5,5	7,5	9	5,5x2	6,5x2	16
	Recommended resistance Ω	43	32	25	22	16	16	16	16	12	8	12x2	8x2	2,5
DC Reactor		Built-in												
IP protection		IP 20												

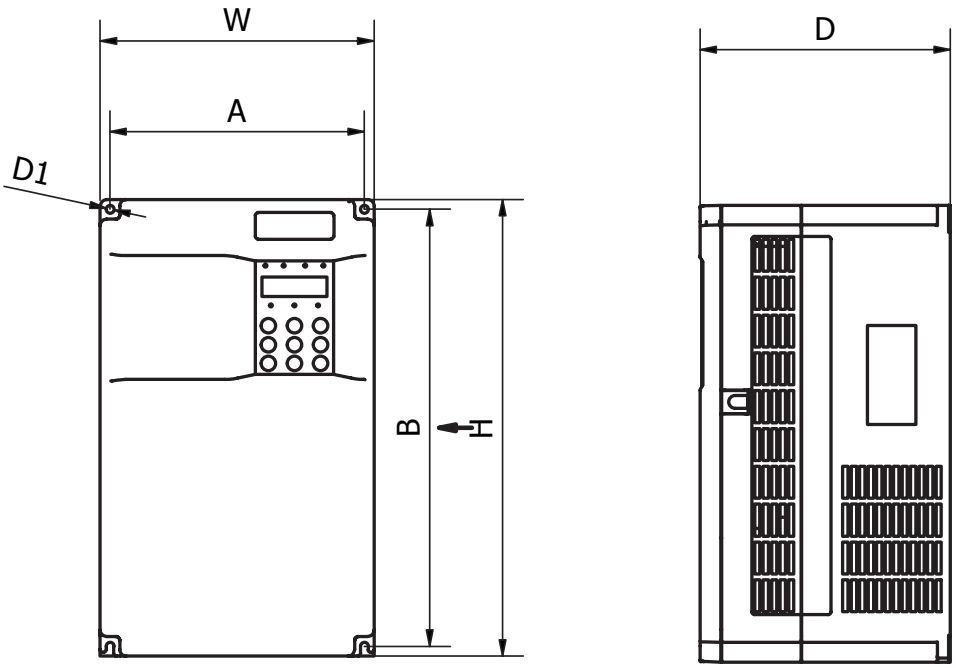
Drive model	Frame type	Dimensions (mm)							Mass kG
		A	B	H	H1	W	D	D1	
DRVHY-025-RES-S00 to DRVHY-045-RES-S00	T5	195	335	350	/	210	192	Ø6	9,1
DRVHY-060-RES-S00 to DRVHY-075-RES-S00	T6	230	380	400	/	250	220	Ø7	17,5
DRVHY-091-RES-S00 to DRVHY-112-RES-S00	T7	245	523	525	542	300	275	Ø10	35
DRVHY-140-RES-S00 to DRVHY-210-RES-S00	T8	270	560	554	580	338	315	Ø10	51,5
DRVHY-253-RES-S00 to DRVHY-304-RES-S00	T9	320	890	874	915	400	320	Ø10	85

CERTIFICATION

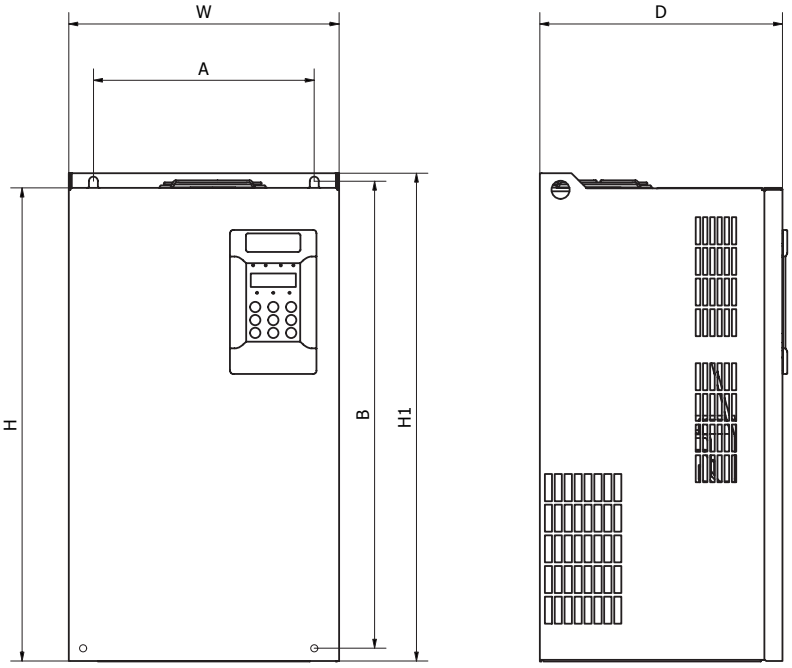
CERTIFICATION	Certification Mark	Directive		Standard
CE	CE	EMC Directive	2014/30/EU	EN 61800-3
		Low Voltage Directive	2014/35/EU	EN 61800-5-1
		RoHS Directive	2011/65/EU	EN 50581
UL	c UL us LISTED	-		UL61800-5-1 C22.2 No.14-13

DRIVE DIMENSIONS

Plastic housing from size 025 to size 075



Metal housing from size 091 to size 300



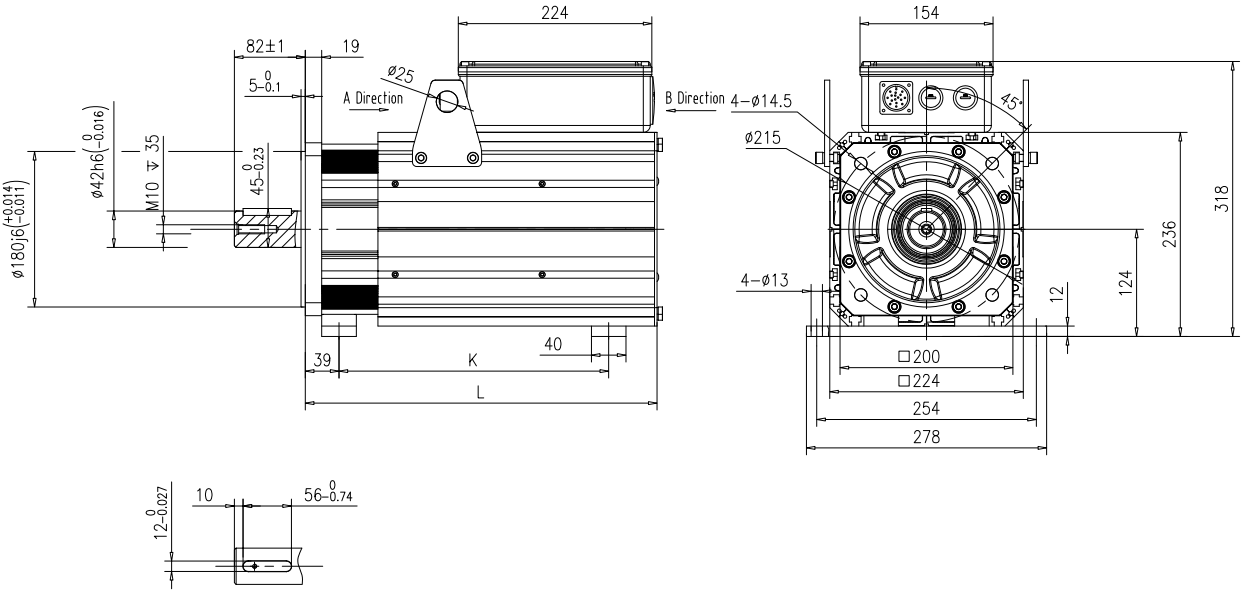
SERVO MOTOR 2000 RPM SPECIFICATIONS

SERIES		SIZE									
Model	SMBHY-***20FR-S00	I12	I18	I23	I28	I41	I42	I57	I70	I80	I12
Rated voltage V		380									
Rated speed rpm		2000									
Rated power kW		10,5	15,7	19,3	24,1	41	35,6	48,2	59,7	71,2	92,1
Rated current A		21,6	30,4	39,8	49,8	60,7	73,6	93,1	125,6	147,2	178,1
Peak current A		26	36,4	47,6	58,4	78,9	86,6	109,3	147,6	166,7	206,5
Rated torque Nm		50	75	92	115	150	170	230	285	340	440
Peak Torque Nm		130	180	230	280	380	330	440	550	660	825
Inertia 10 $^{-3}$ kg*m^2		7,5	9	10,5	12	15	29,6	36,8	43,4	50	64
Torque costant kt Nm/A		2,31	2,47	2,3	2,31	2,47	2,24	2,39	2,98	*	*
Mass		45,2	51,9	59	66	79,8	122	141,3	158,4	175,4	217
Poles		8									

SERVO MOTOR 3000 RPM SPECIFICATIONS

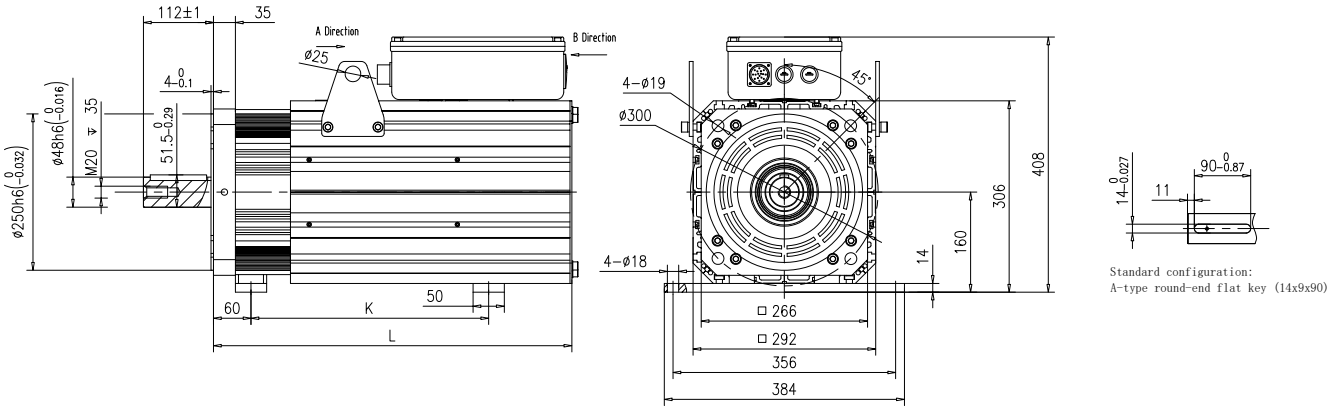
SERIES		SIZE							
Model	SMBHY-***30FR-S00	P04	P07	P10	P13	P31	P32	P33	P34
Rated voltage V		380							
Rated speed rpm		3000							
Rated power kW		12	22	30	42	41	75	80	144
Rated current A		25	51	59	82	82	156	228	299
Peak current A		64	144	179	233	244	502	564	747
Rated torque Nm		38	70	97	135	130	240	350	460
Peak Torque Nm		102	210	310	410	325	650	830	1100
Inertia 10 $^{-3}$ kg*m^2		50	90	130	170	200	390	590	780
Torque costant kt Nm/A		1,68	1,53	1,82	1,85	1,89	1,84	1,84	1,84
Mass		46	56	70	78	65	100	130	160
Poles		8							

SERVOMOTOR DIMENSIONS



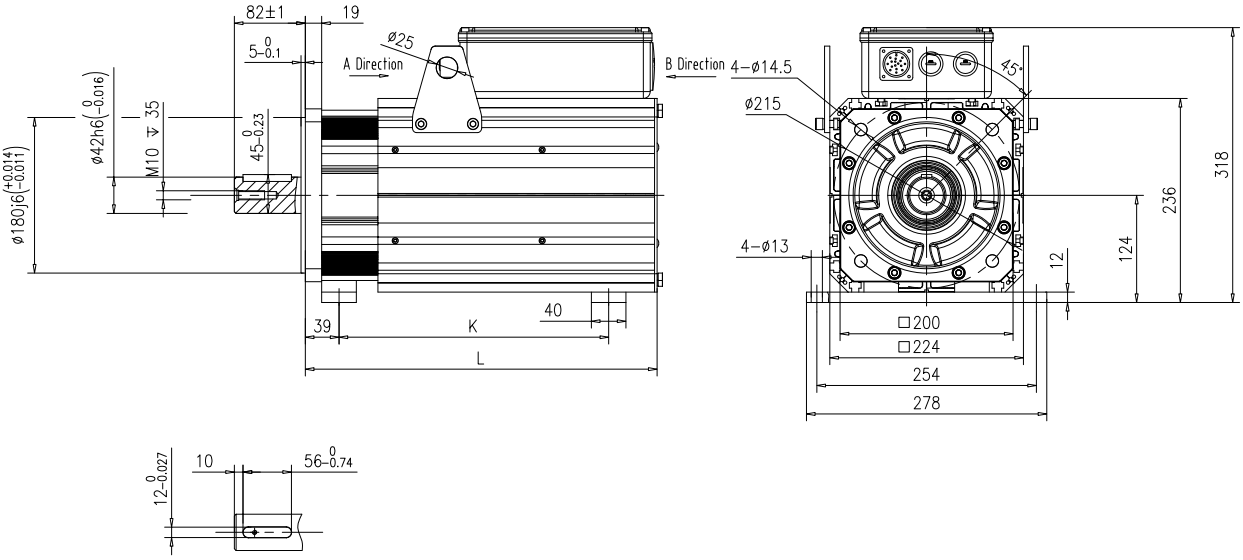
Standard configuration:
A-type round-end flat key (12x8x56)

MOTOR MODEL	SMBHY-I1220FR-S00	SMBHY-I1820FR-S00	SMBHY-I2320FR-S00	SMBHY-I2820FR-S00	SMBHY-I4120FR-S00
K	285	312	354	396	471
L	375	410	445	480	550



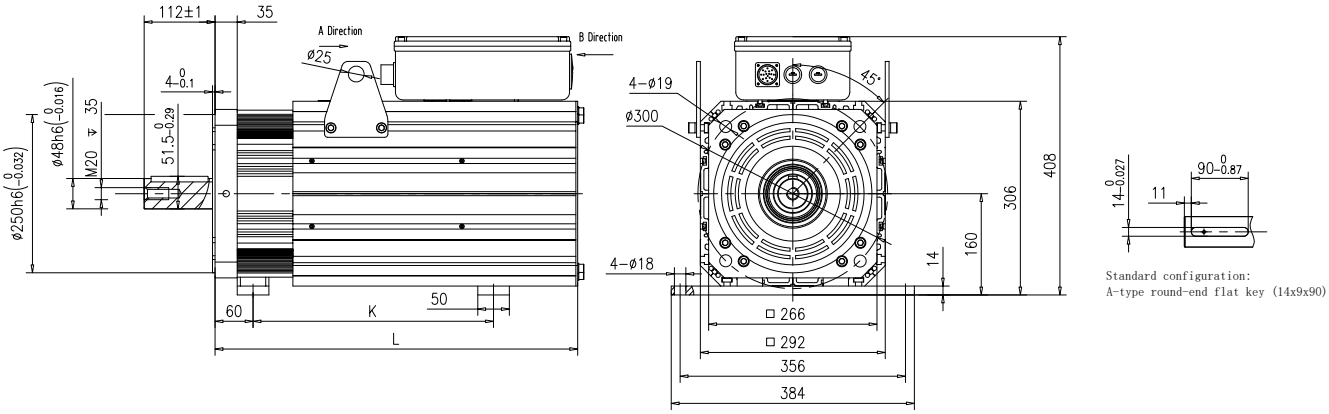
Standard configuration:
A-type round-end flat key (14x9x90)

MOTOR MODEL	SMBHY-I4220FR-S00	SMBHY-I5720FR-S00	SMBHY-7020FR-S00	SMBHY-8020FR-S00	SMBHY-1120FR-S00
K	360	370	476	476	583
L	525	575	625	675	775



Standard configuration:
A-type round-end flat key (12x8x56)

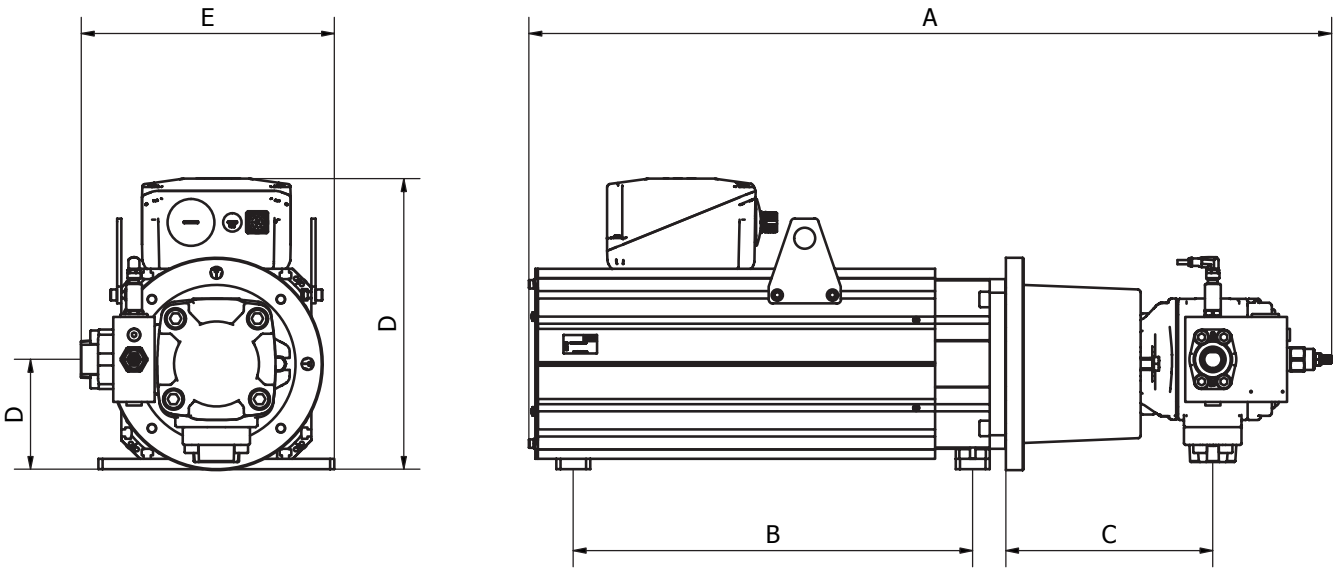
MOTOR MODEL	SMBHY-P0430FR-S00	SMBHY-P0730FR-S00	SMBHY-1030FR-S00	SMBHY-P1330FR-S00
K	267	312	396	471
L	338,5	410,5	482,5	554,5



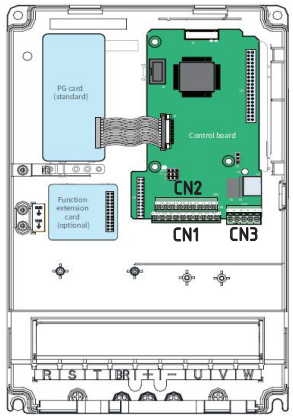
Standard configuration:
A-type round-end flat key (14x9x90)

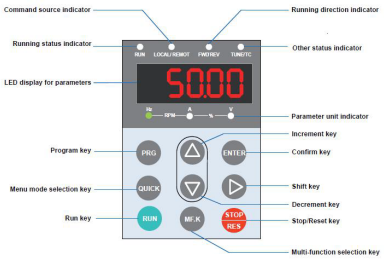
MOTOR MODEL	SMBHY-P3130FR-S00	SMBHY-P3230FR-S00	SMBHY-P3330FR-S00	SMBHY-P3430FR-S00
K	263	370	477	584
L	460	567	674	781

MOTOR UNITS OVERALL DIMENSIONS

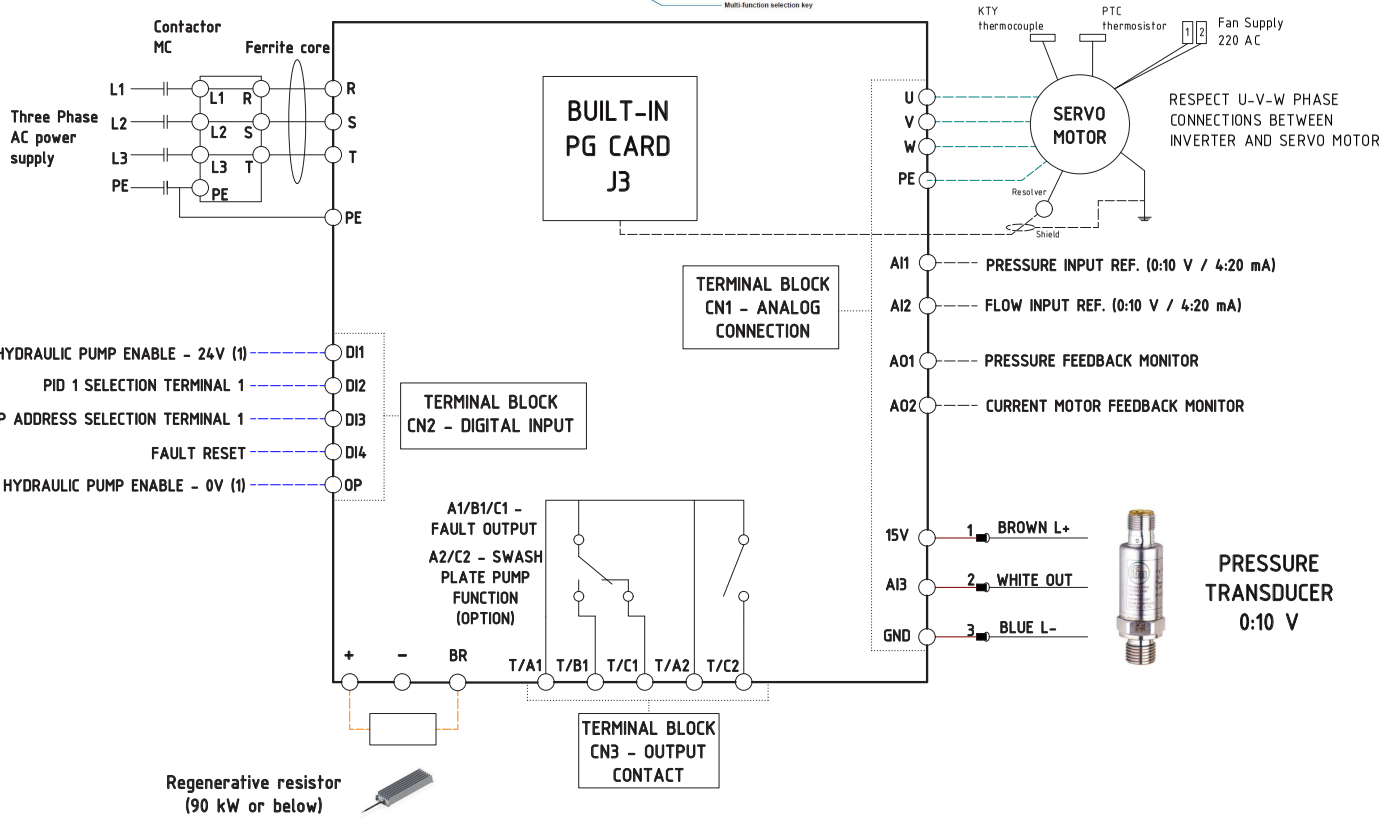


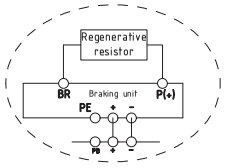
KIT NAME	DIMENSIONS mm				
	A	B	C	D	E
KSPH-25	733,31	285	218,25	321	278
KSPH-35	704,41	267	218,25	322,85	278
KSPH-45	816,06	354	232	321	278
KSPH-55	783,16	312	225	342,15	278
KSPH-75	860,06	396	239	321	278
KSPH-90	793,66	312	235,5	342,8	278
KSPH-95	936,06	471	244	321	278
KSPH-110	869,16	396	239	342,9	278
KSPH-120	1012,36	370	286	408	384
KSPH-150	953,16	471	251	342,8	278
KSPH-230	on request				
KSPH-350	on request				





Terminal	Pin No.	Pin Definition	Function Description	Terminal Arrangement
J3	1	REF-	Resolver excitation negative	
	2	REF+	Resolver excitation positive	
	3	COS+	Resolver feedback COS positive	
	4	COS-	Resolver feedback COS negative	
	5	SIN+	Resolver feedback SIN positive	
	6	KTY-M	KTY resistor positive	
	7	PTC-M	PTC resistor positive	
	8	KTY-N	KTY or PTC resistor negative	
	9	SIN-	Resolver feedback SIN negative	
CN1	18-pin FFC interface, connecting J2 of control board of the drive			





Regenerative resistor (90 kW above)

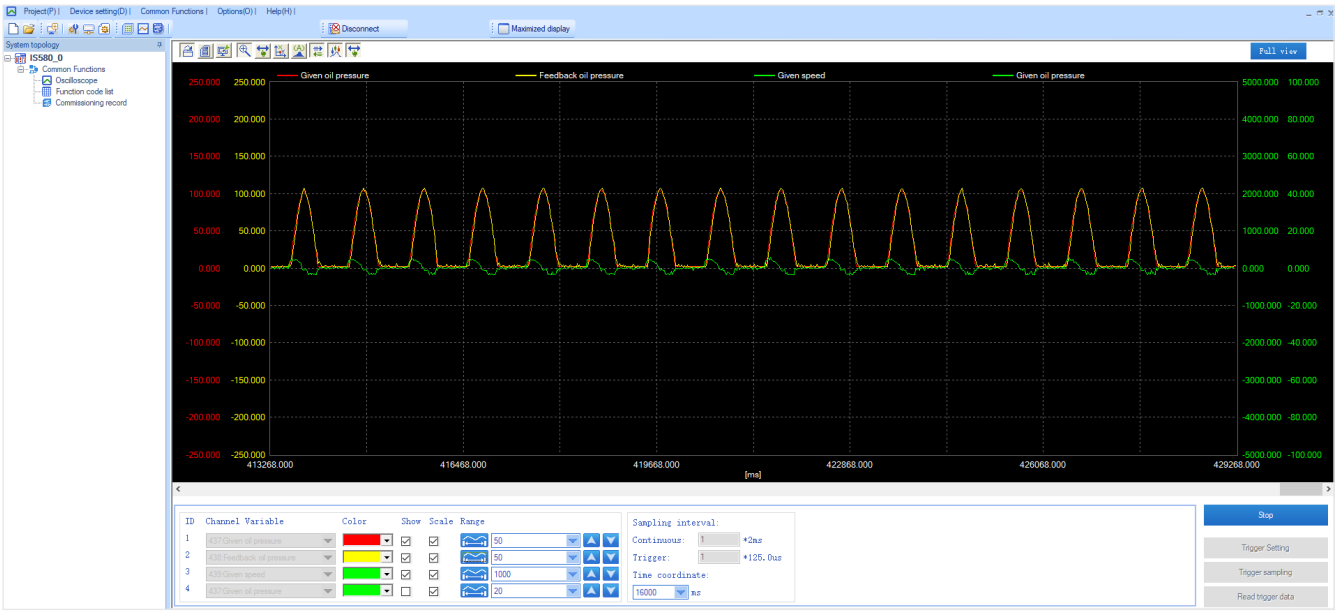
(1) connection with external 24V power supply

THE PLUG&PLAY TECHNOLOGY OF KSPH SERVO PUMP AND ITS SOFTWARE

Thanks to the **“plug & play” system**, Hydraut’s KSPH servopump is designed for simple and immediate installation, without the need for complex configurations or significant structural modifications. This technology **reduces machine downtime** and **allows production to start quickly**, improving operational efficiency. The servopump is assembled, tested, and parameterized specifically according to the customer’s application, requiring the user only to connect it to the machine for immediate use.

KSPH system is **supplied with a software** where users can set parameters and monitoring machine status.

- Edit parameter settings
- End users can read and write parameters and easily set them to save time. Remote setting is also possible.
- Oscilloscope functions
- The pressure, flow rate and other internal data can be monitored and displayed in graphs. These key visuals facilitate operation checks during test runs, parameter adjustments and troubleshooting.
- Saving and storing calibrations
- The end user has the ability to store,upload and modify calibrations of their system by creating custom libraries.



NOTE


HYDRAUT WARRANTY
INTERNATIONAL
CERTIFICATION
FOR 24 MONTHS