



Sure to be safe

Hydraulic
Power Units



brake type	recommended Hydraulic Power Unit	
	<= 50 c / h	<= 200 c / h
SHI 282 & SHI 282 FC	V 2.1.C ^{*)}	V 3.C
SHI 281 & SHI 281 FC	V 2.1.D ^{*)}	V 3.D
SHI 252 & SHI 252 FC	V 2.1.D ^{*)}	V 3.D
SHI 251 & SHI 251 FC	V 2.1.B ^{*)}	V 3B
SHI 232 & SHI 232 FC	V 2.1.C ^{*)}	V 3.C
SHI 231 & SHI 231 FC	V 2.1.D ^{*)}	V 3.D
SHI 202 & SHI 202 FC	V 2.1.C ^{*)}	V 3.C
SHI 201 & SHI 201 FC	V 2.1.B ^{*)}	V 3.B
SHI 162 & SHI 162 FC	V 2.1.C ^{*)}	V 3.C
SHI 161 & SHI 161 FC	V 2.1.B ^{*)}	V 3.B
SHI 107 & SHI 107 FC	V 2.1.C ^{*)}	V 3.C
SHI 106 & SHI 106 FC	V 2.1.D ^{*)}	V 3.D
SHI 105 & SHI 105 FC	V 2.1.B ^{*)}	V 3.B
SHI 104 & SHI 104 FC	V 2.1.A ^{*)}	V 3.A
SHI 103 & SHI 103 FC	V 2.1.A ^{*)}	V 3.A
SHI 75-6 & SHI 75-6 FC	V 2.1.D ^{*)}	V 3.D
SHI 75-5 & SHI 75-5 FC	V 2.1.B ^{*)}	V 3.B
SHI 75-4 & SHI 75-4 FC	V 2.1.A ^{*)}	V 3.A
SHI 75-3 & SHI 75-3 FC	V 2.1.A ^{*)}	V 3.A
SHI 75-2 & SHI 75-2 FC	V 2.1.E ^{*)}	V 3.E
SHI 75-1 & SHI 75-1 FC	V 2.1.E ^{*)}	V 3.E
CB8-H	V 2.1.C ^{*)}	V 3.C
RPS 600	V 3.C	-
RPS 450	V 3.D	-
RPS 300	V 3.C	-
RPS 200	V 3.B	-
RHI 105 FC	V 3.B	-
RHI 104 FC	V 3.A	-
RHI 103 FC	V 3.A	-
RHI 102 FC	V 3.E	-
RHI 101 FC	V 3.E	-
RHI 125	V 3.B	-
RHI 85	V 3.B	-
RHI 70	V 3.B	-
RHI 56	V 3.B	-
RHI 30	V 3.B	-

^{*)} recommendation: for power packs V2 we recommend to connect up to two brakes per power pack

Mode of operation

Releasing the brake

If the 2/2 directional seat valve is energized, it is in closed position. The hydraulic pump motor starts working. Thus, the hydraulic pressure is increased up to the value adjusted with pressure switch. When reaching the adjusted pressure, the caliper is fully released.

The caliper release time is approximate 1 s from energizing of hydraulic pump motor and 2/2 directional seat valve.

Brake in released position

The higher order control system switches off the hydraulic pump motor with motor contactor via control signal from pressure switch. The caliper remains in released position due to check valve and the 2/2 directional seat valve is set to closed position (energized).

Loss of pressure

The hydraulic system pressure could drop under the value adjusted on pressure switch due to possible leakage of hydraulic piping. The motor contactor switches on the hydraulic pump motor via control signal from the higher order control system. Thus, the hydraulic pressure is increased up to the value adjusted with pressure switch.

Closing the brake

For closing the brake, the 2/2 directional seat valve and the hydraulic pump motor are disenergized simultaneously. Thus the hydraulic pressure returns to the reservoir and the caliper is applied immediately. The closing times of the brakes in data sheet M 1501 259 E are valid after switch off power supply. In case of emergency switch off or power failure the brake closes as described above.

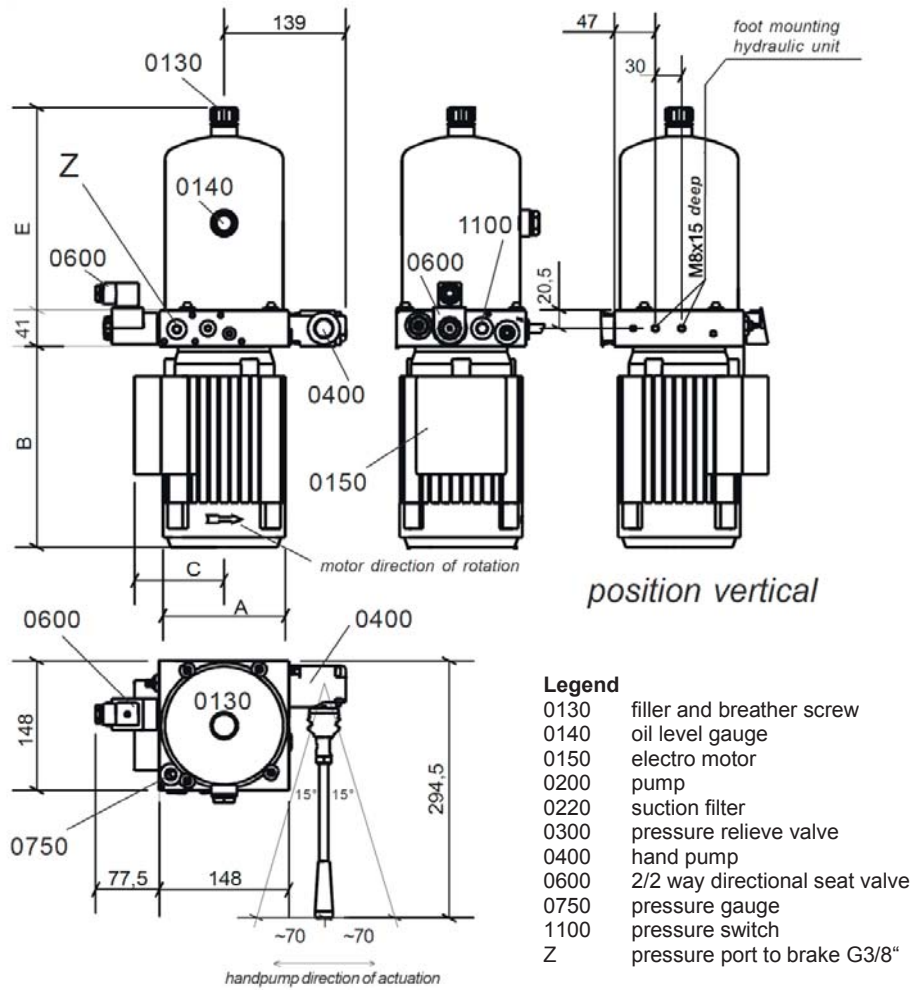
Emergency condition

The hand pump is designed for an operating under emergency condition.

For releasing the caliper by hand pump the 2/2 directional seat valve must be closed manually in order to close the return line.

Safety drive

It's necessary to control from the customer control system to switch off the pump motor in every case after approx. 15 s (depends on the system). If the pressure switch don't react after approx. 15 s there is a system failure. This failure is to report from the customer control system.

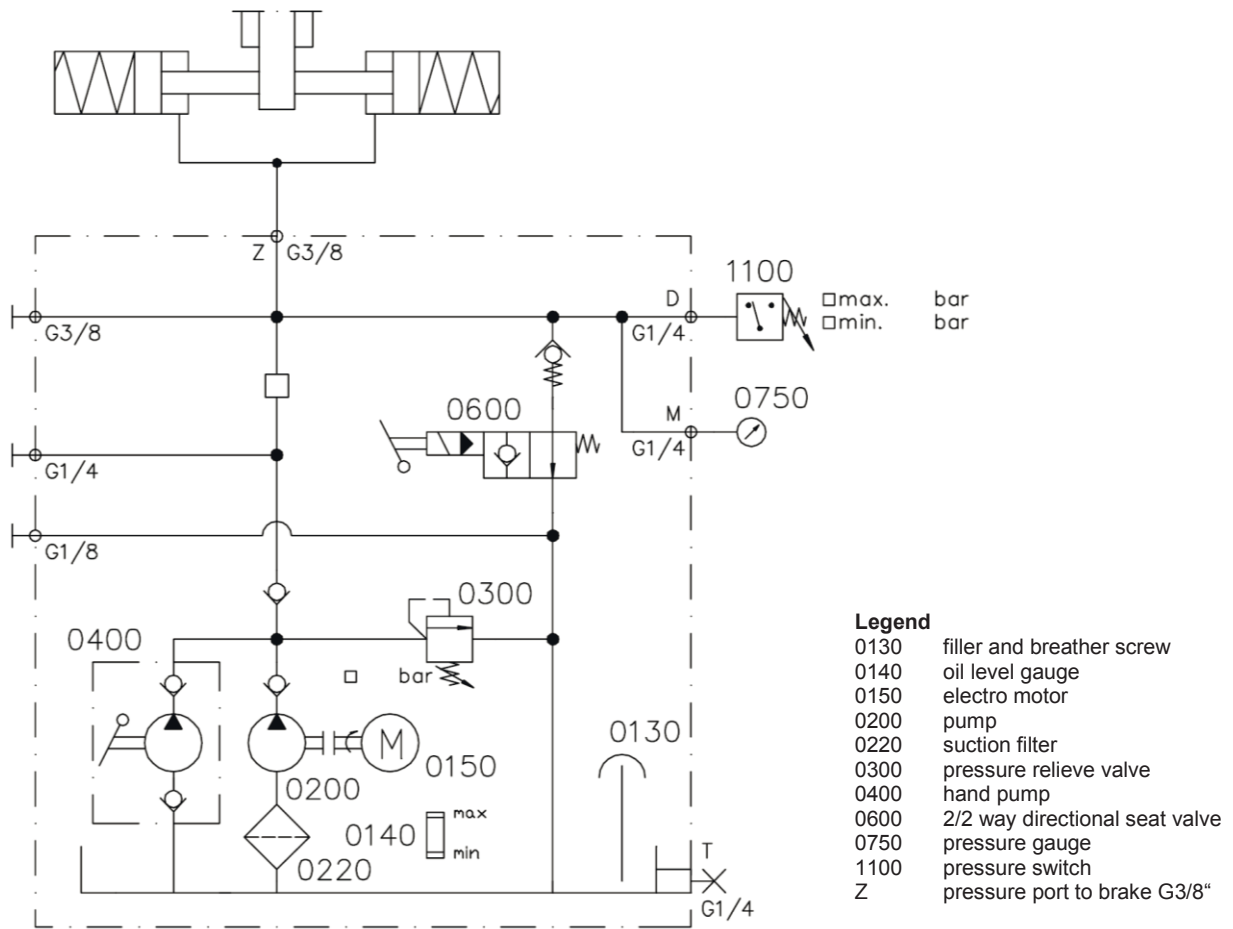


Unit type	dimension	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
V2.1		140	230	102	85	333
V2.2		140	202	102	85	233

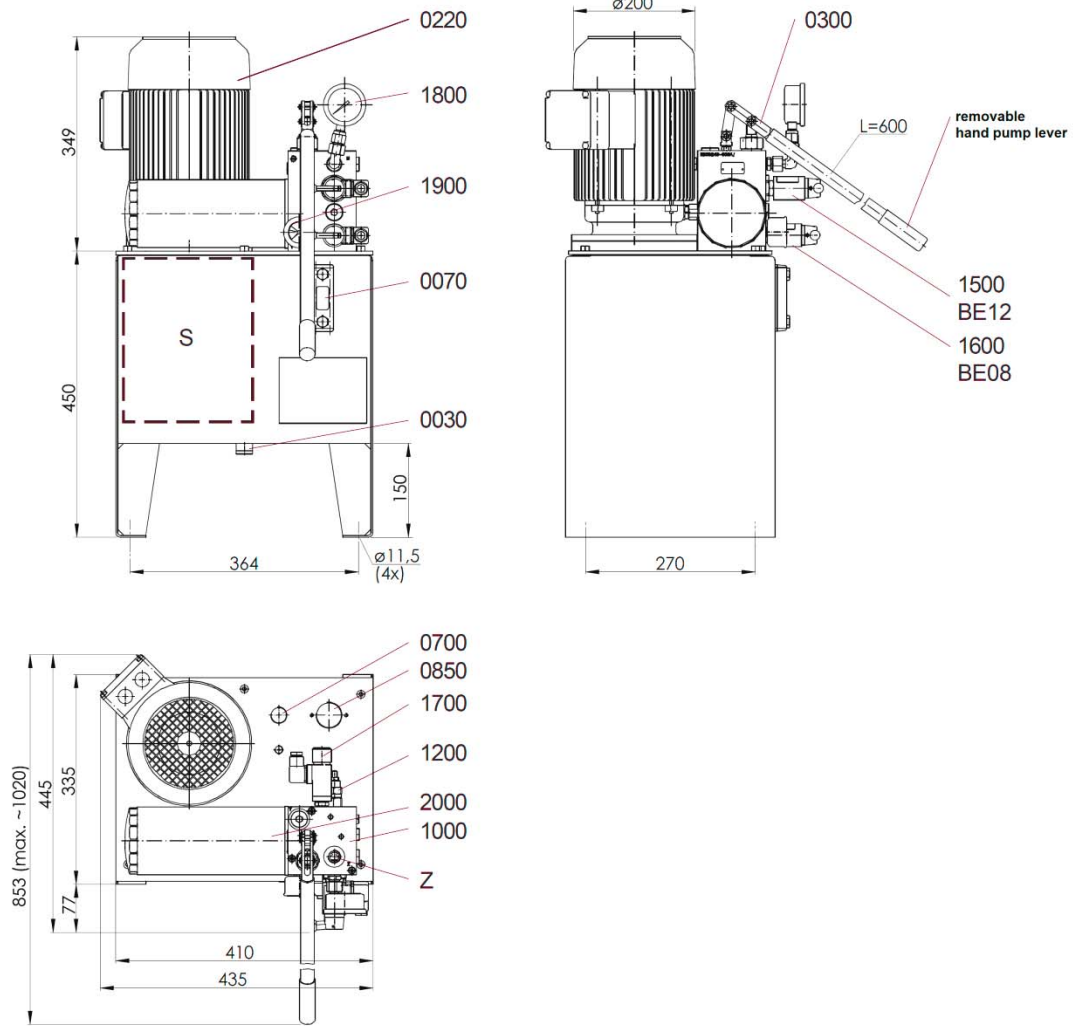
Technical Data

- weight without oil-filling approx.. 15 kg
- tank volume 4 ltr.
- ambient temperature ranges -15°C ... +40°C in standard version
others upon request
- humidity ≤ 90%
- recommended operating fluid HLP Hydraulic oil acc DIN51524-T2
- for standard version: HLP Synth 32
- others version: upon request
- protection class IP55
- max. no. of operating cycles per hour 50
- motor rotating clockwise when looking at ventilator:
supply voltage range 50 Hz / 380-420 V
60 Hz / 440-480 V
- valve voltages P = 24 V DC (Standard)
V = 115 V AC ; 50/60 Hz (optional)
W = 230 V AC ; 50/60 Hz (optional)
(others upon request)
- valve capacity per valve 35 l/min at Δp 10 bar
- mounting position of HPU vertical

Type	Pressure switch		Pressure relieve valve setting (DBV)	Release pressure	Pump capacity	Motor power kW	Motor power kW
	min	max					
	bar		bar	bar	l/min	S1	S3 (20%)
V2.1-E	55	70	85	55	9,0	1,5	2,2
V2.1-A	80	95	110	80	9,0	1,5	2,2
V2.1-B	120	135	150	120	7,2	1,5	2,2
V2.1-D	145	160	175	145	5,8	1,5	2,2
V2.1-C	175	190	205	175	5,8	1,5	2,2



Type	Suitable for					
V2.1-E	SHI 102	SHI 101	SHI 75-2	SHI 75-1		
V2.1-A	SHI 104	SHI 103	SHI 75-4	SHI 75-3		
V2.1-B	SHI 251	SHI 201	SHI 161	SHI 105	SHI 75-5	
V2.1-D	SHI 281	SHI 252	SHI 231	SHI 106	SHI 75-6	
V2.1-C	SHI 282	SHI 232	SHI 202	SHI 162	SHI 107	
	CB8-H					



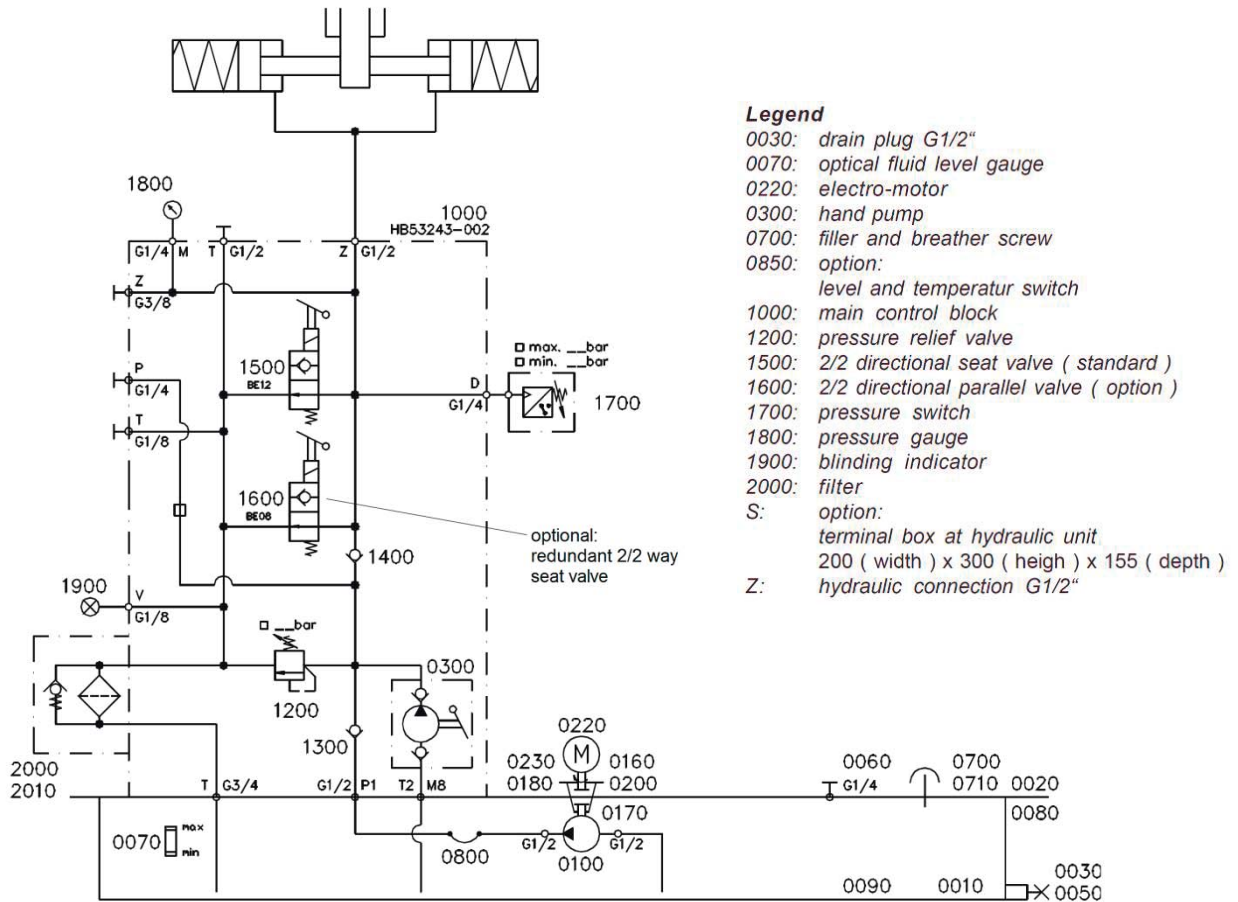
Technical Data

- weight without oil-filling
approx.. 60 kg
- tank volume
30 ltr.
- ambient temperature ranges
-15°C ... +50°C in standard version
-30°C ... +50°C in low temperature version
-15°C ... +75°C in high temperature version
- humidity
≤ 90%
- recommended operating fluid
HLP Hydraulic oil acc DIN51524-T2
- for standard version: HLP Synth 32
- others version: upon request
- protection class
IP55
- max. no. of operating cycles per hour
50
- motor
rotating clockwise when looking at ventilator:
supply voltage range
50 Hz / 380-420 V
60 Hz / 440-480 V
- valve voltages
P = 24 V DC (standard)
V = 115 V AC ; 50/60 Hz (optional)
W = 230 V AC ; 50/60 Hz (optional)
(others upon request)
- valve capacity per valve BE12
100 l/min at Δp 10 bar
valve capacity per redundant valve BE08
35 l/min at Δp 10 bar
- mounting position of HPU
horizontal

Alterations reserved

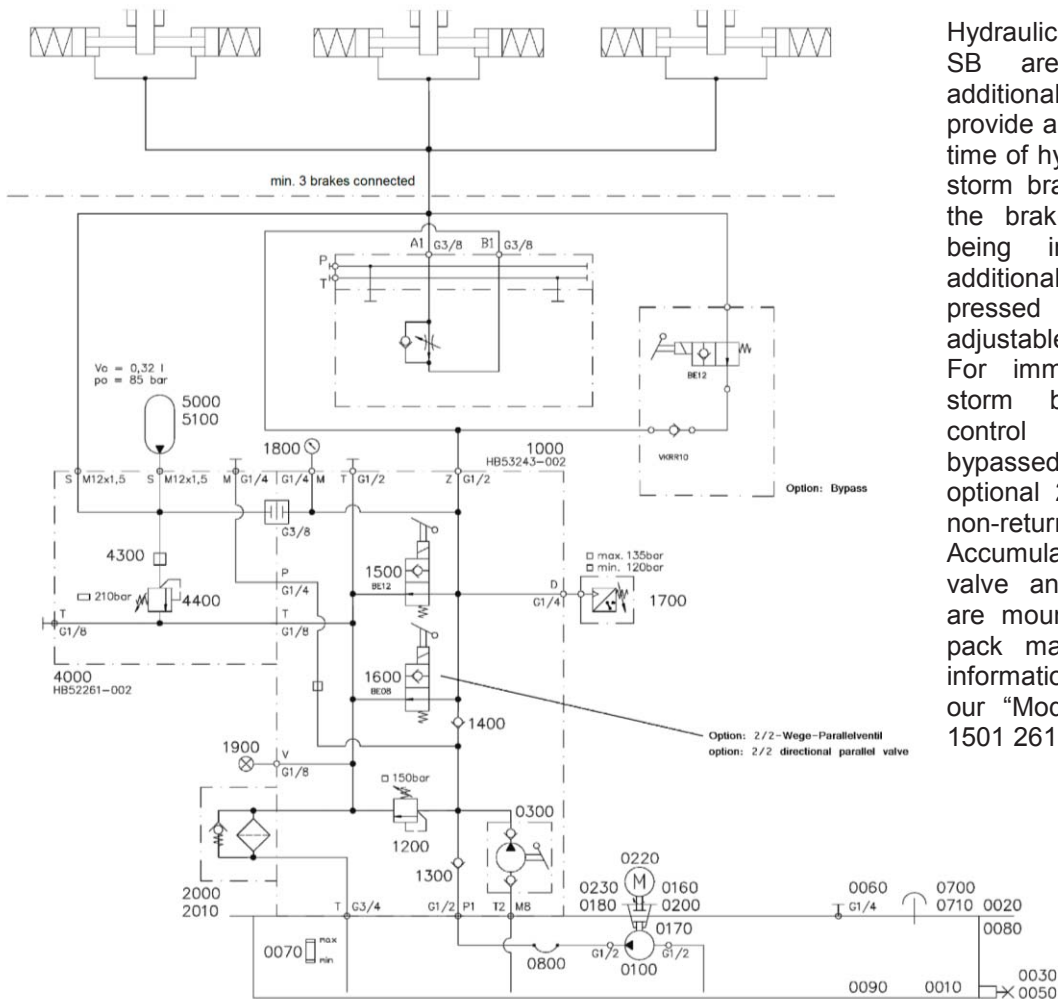
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Type	Pressure switch		Pressure relieve valve setting (DBV)	Release pressure	Pump capacity	Motor power
	min	max				
bar						
V3 E	55	70	85	55	20	3.0
V3 A	80	95	110	80	20	3.0
V3 B	120	135	150	120	13	3.0
V3 D	145	160	175	145	9	3.0
V3 C	175	190	205	175	9	3.0



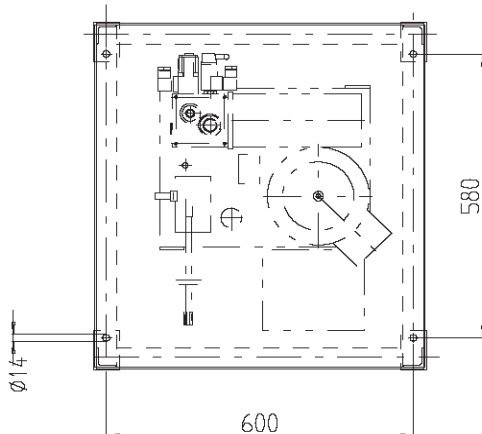
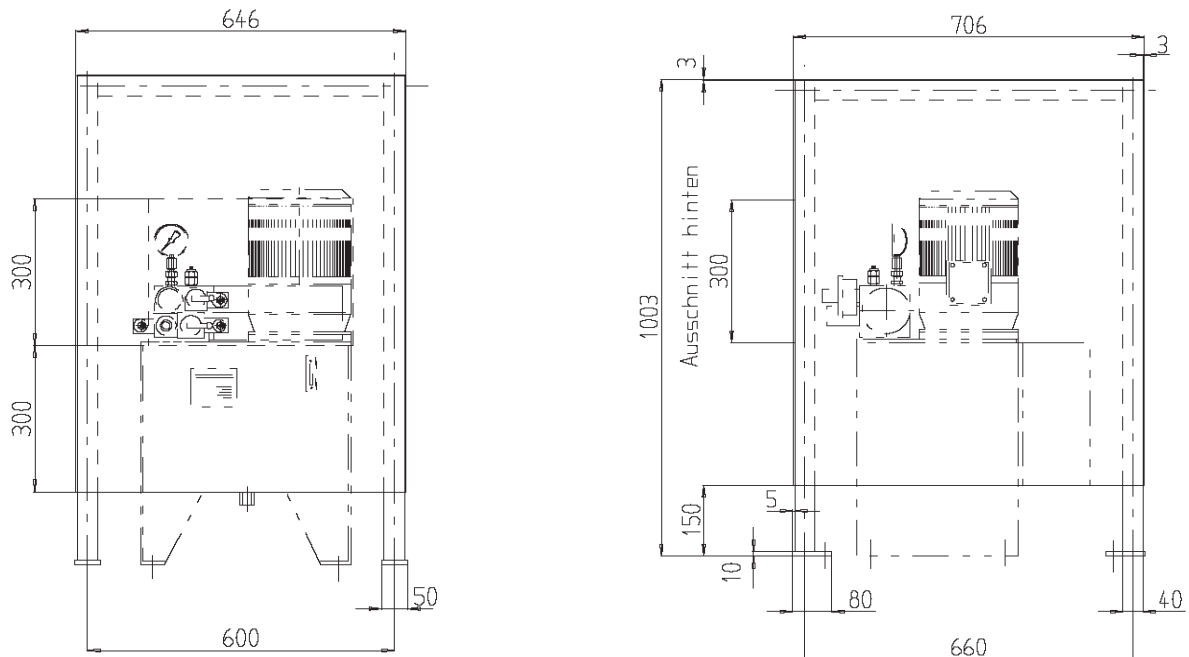
Type	Suitable for					
V3 E	SHI 102	SHI 101	SHI 75-2	SHI 75-1		
	RHI 102	RHI 101				
V3 A	SHI 104	SHI 103	SHI 75-4	SHI 75-3		
	RHI 104	RHI 103				
V3 B	SHI 251	SHI 201	SHI 161	SHI 105	SHI 75-5	
	RHI 125	RHI 105	RHI 85	RHI 70	RHI 56	RHI 30
	RPS 200					
V3 D	SHI 281	SHI 252	SHI 231	SHI 106	SHI 75-6	
	RPS 450					
V3 C	SHI 282	SHI 232	SHI 202	SHI 162	SHI 107	
	RPS 600	RPS 300				
	CB8-H					

Type	Pressure switch		Pressure relieve valve setting (DBV)	Release pressure	Pump capacity	Motor power
	min	max				
	bar		bar	bar	l/min	kW
V3-SB E	55	70	85	55	20	3,0
V3-SB A	80	95	110	80	20	3,0
V3-SB B	120	135	150	120	13	3,0
V3-SB D	145	160	175	145	9	3,0
V3-SB C	175	190	205	175	9	3,0



Hydraulic power packs V3-SB are equipped with additional components to provide an adjustable closing time of hydraulically released storm brakes. When closing the brakes the oil-volume, being increased by an additional accumulator, is pressed through an adjustable flow control valve. For immediate closing of storm brakes, the flow control valve can be bypassed by means of an optional 2/2 port valve with non-return valve. Accumulator, flow control valve and optional bypass are mounted on the power pack manifold. For further information please refer to our "Mode of Operation M 1501 261E".

Type	Suitable for					
V3-SB E	RHI 102	RHI 101				
V3-SB A	RHI 104	RHI 103				
V3-SB B	RHI 125	RHI 105	RHI 85	RHI 70	RHI 56	RHI 30
V3-SB C	RPS 600	RPS 450	RPS 300	RPS 200		



Cover for Hydr. Power Packs V3 with removable front plate and rear-side inspection window

- *robust welded steel structure with bolted cover plates*
- *available in powder coated steel version (version A) or completely made of stainless steel (version B)*

Ordering Instructions

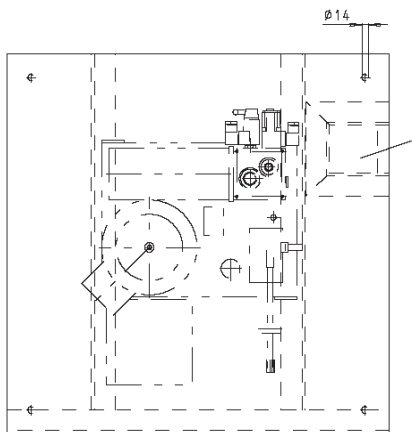
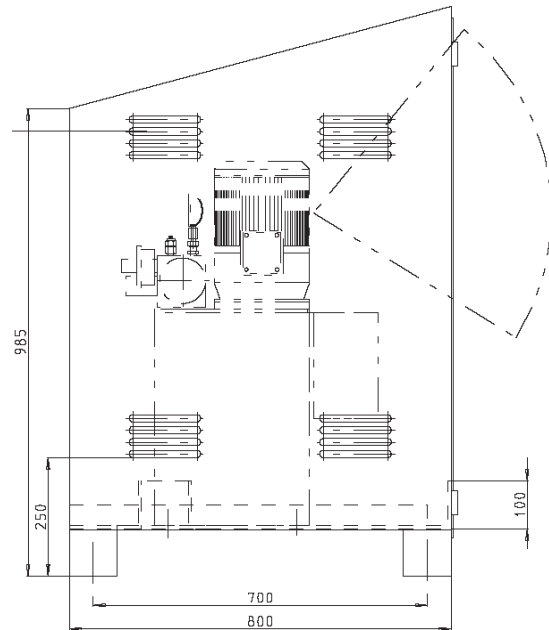
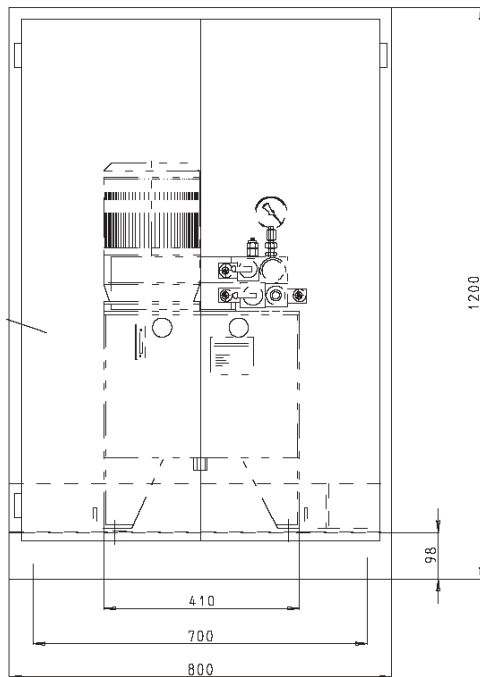
When ordering please advise:

Cover for Hydr. Power Pack V3

- acc. to data sheet M 1501 311 E
- version A (powder coated)
- version B (stainless steel)

Alterations reserved

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Housing for Hydr. Power Packs Version V3

- *with two big-size doors for easy access for operating and maintenance*
- *housing bottom built as oil tray for up to 30 ltr. of oil*
- *available in powder coated steel version (version A) or completely made of stainless steel (version B)*

Ordering Instructions

When ordering please advise:

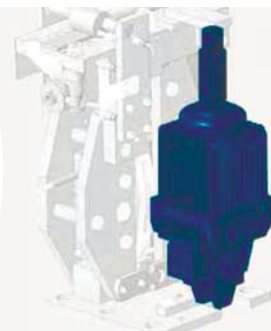
Housing for Hydr. Power Pack V3

- acc. to data sheet M 1501 312 E
- version A (powder coated)
- version B (stainless steel)



Sure to be safe

Thrusters



Technical Data

Type EB	Rated stroke	Rated actuating force	Spring version	Rated resetting force at rated operating point	Admissible deviation	Power consumption	Current input	Volume of operation fluid	Weight with hydraulic fluid	Setting time	Resetting time
	[mm]	[N]		[N]	[+N]	KW	A	l	kg	s	s
EB 120-40	40	120	C 6 C 12	60 120	9 16	0.13	0.4	1.2	7.5	0.21	0.25
EB 220-50	50	220	C 120 C 180 C 220	120 180 220	8 11 11	0.16	0.4	2.6	9.3	0.42	0.38
EB 300-50	50	300	C 120 C 200 C 270	120 200 270	15 24 24	0.14	0.3	1.8	9.6	0.45	0.33
EB 500-60	60	500	C 180 C 320 C 500	180 320 500	22 39 61	0.2	0.4	2.6	13.1	0.42	0.33
EB 800-60	60	800	C 450 C 800	450 800	54 80	0.26	0.5	4.3	19	0.37	0.4
EB 1250-60	60	1250	C 450 C 800 C 1250	450 800 1250	54 80 134	0.38	0.6	4.3	20.6	0.48	0.29
EB 2000-60	60	2000	C 700 C 1300 C 2000	700 1300 2000	70 130 200	0.5	0.7	9	32.8	0.55	0.33
EB 3000-60	60	3000	C 700 C 2500 C 3200	700 2300 2950	70 230 300	0.55	0.9	10.1	39	0.6	0.38
Long-stroke units											
EB 500-120	120	500	C 180 C 320 C 500	132 300 432	16 36 52	0.2	0.4	3.5	14.8	0.78	0.55
EB 800-120	120	800	C 450 C 800	300 520	50 75	0.38	0.5	6	23	0.7	0.55
EB 1250-120	120	1250	C 450 C 800 C 1250	300 520 820	50 75 125	0.38	0.6	6	24.2	0.95	0.55
EB 2000-120	120	2000	C 700 C 1300 C 2000	510 850 1360	60 130 190	0.50	0.7	9	32.8	1.1	0.55
EB 3000-120	120	3000				0.55	0.9	10.1	39	1.1	0.62
EB 6300-120	120	6300	C 700 C 2500 C 3200	700 2300 2950	70 230 300	0.8	1.6	10.6	43.5	1.2	0.3

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Technical Data

Size	Lifting force	Stroke	Trust	Braking spring force (c-spring)	Power consumption	Current consumption at 400V/50Hz	Duty rating at S3-60% duty cycle	Weight
	N	Mm	N cm	N	W	A	c/h	Kg
Short-stroke units								
EdC 100/30	1000	30	3000	-	250	0,45	240	10
Ed 23/5	220	50	1100	180	165	0.5	2000	10
Ed 30/5	300	50	1500	270	200	0.5	2000	14
Ed 50/6	500	60	3000	460	210	0.5	2000	23
Ed 80/6	800	60	4800	750	330	1.2	2000	24
Ed 121/6	1250	60	7500	1200	330	1.2	2000	39
Ed 201/6	2000	60	12000	1900	450	1.3	2000	39
Ed 301/6	3000	60	18000	2700	550	1.4	1500	40
Long-stroke units								
Ed 50/12	500	120	6000	-	210	0.5	1200	26
Ed 80/12	800	120	9600	-	330	1.2	1200	27
Ed 121/12	1250	120	15000	-	330	1.2	1200	39
Ed 201/12	2000	120	24000	-	450	1.3	1200	39
Ed 301/12	3000	120	36000	-	550	1.4	900	40
Ed 185/16	1850	155	29600	-	450	1.3	400	40
Ed 301/15	3000	150	45000	-	550	1.4	400	50
Ed 350/20	3500	200	70000	-	550	1.4	400	50

Further thrusters with up to 6300 N lifting force and / or 200 mm stroke available upon request.