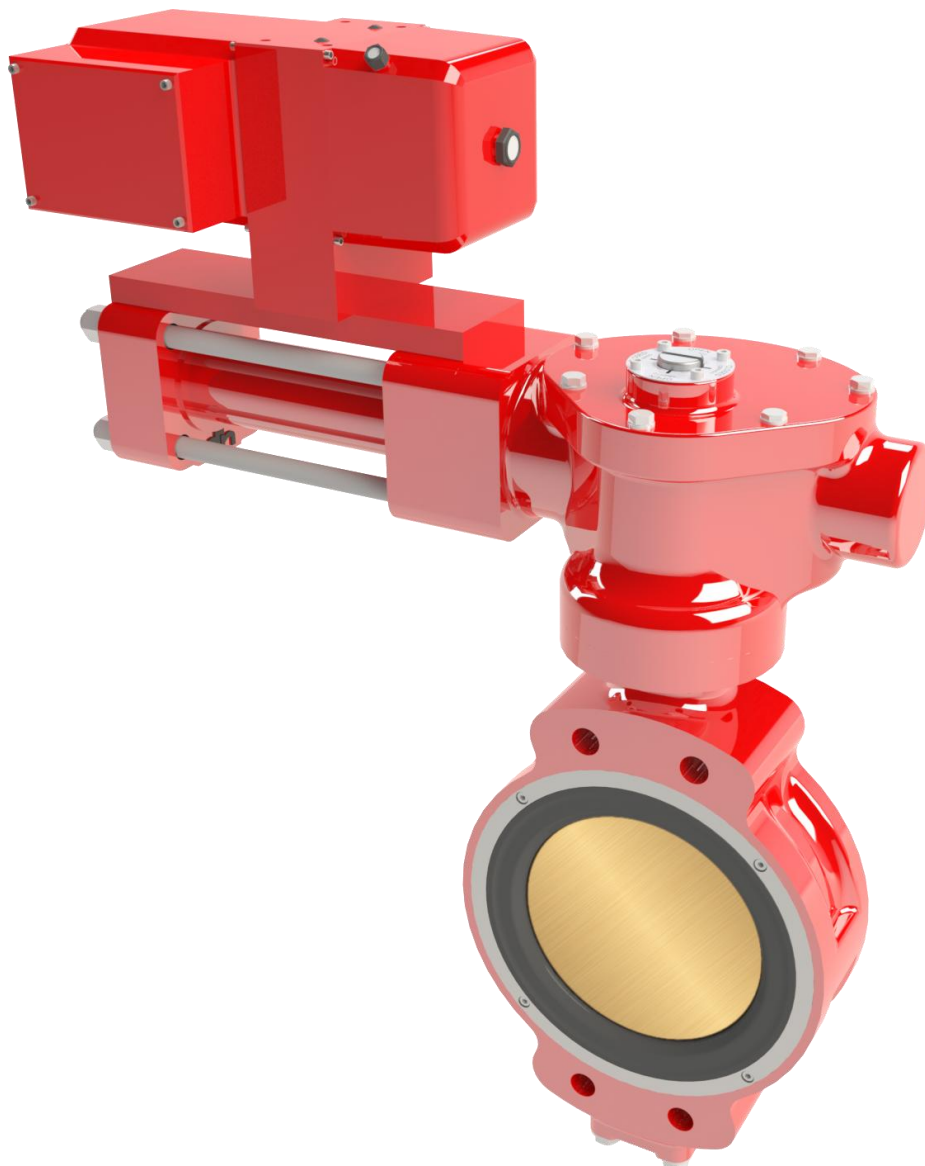




LOCAL POWER UNIT

PCBT-3200-LPU



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Description

The Local Power Unit (LPU) is an electro-hydraulic pack directly mounted on the valve/actuator for remote control purposes.

This type of remote control systems does not require hydraulic pipes, therefore, the installation is done solely by electrical interface.

The LPU unit consists of an electric motor, hydraulic pump and tank coupled to an hydraulic actuator which in turn is attached to the valve.

Benefits

- Simple and dependable, solely electrical installation.
- Electro-hydraulic pack operation is maintenance free for 5 years or 100.000 cycles ⁽¹⁾.
- Installation without pipes is cost saving and avoids intensive service maintenance works.
- Low electrical power consumption.
- Can be controlled by two electrically type of controls (power controlled or bus controlled).

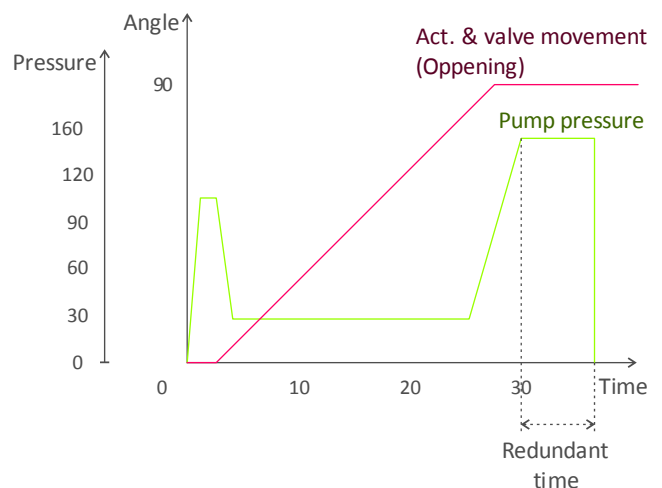
⁽¹⁾ not referring to the valve or actuator, just the electric motor, hydraulic pump and tank.

Valve Operation

Full closed valve:

- Hydraulic pump will increase pressure until the break to open torque is achieved.
- Valve starts to open and just running torque is required from the pump so pressure is reduced.
- Valve achieves full open position and pressure starts increasing again.
- Hydraulic pump reaches maximum pressure and safety valve releases pressure fluid to the tank.
- Hydraulic pump/motor stops when redundant time is completed.
- Double pilot operated non-return valve ensures valve is locked.

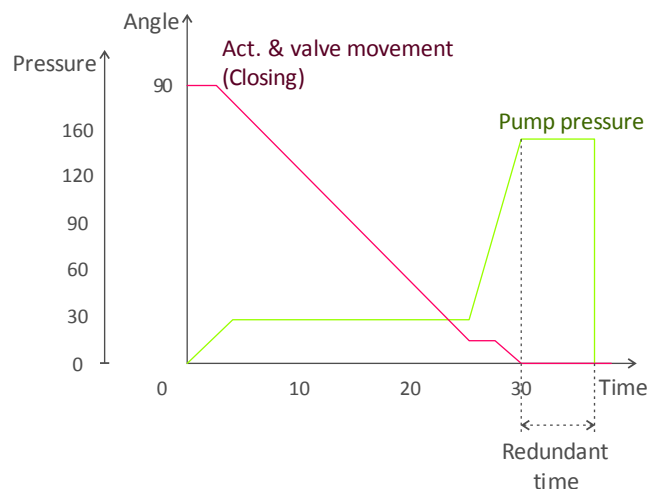
Butterfly valve on a PCBT-3200 actuator



Full open valve:

- Hydraulic pump will increase pressure until the break to close torque is achieved.
- Valve disc comes in contact with valve seat and more pressure/torque is required, hydraulic pump will increase pressure.
- Valve starts final closing when required pressure is achieved.
- Valve is full closed.
- Hydraulic pump reaches maximum pressure and safety valve releases pressure fluid to the tank.
- Hydraulic pump/motor stops when redundant time is completed.
- Double pilot operated non-return valve ensures valve is locked.

Butterfly valve on a PCBT-3200 actuator



General Characteristics

Electrical protection

- HR080 - IP40
- HR120 - IP67

Ambient Temperature Range

- Min -15 °C, max +40 °C

Weight (mass)

- HR080 - 4,0 kg
- HR120 - 5,5 kg

*Full weights see on dimensional table.

Hydraulic Characteristics

Pump Type

- Radial piston pump

Operating Pressure

- 130bar - other pressures on request

Reversing Operation

- Possible

Tank Pressure

- -0,2 bar ... 2 bar

Tank Volume

- HR080 - 0,23 l
- HR120 - 0,70 l

Hydraulic Medium

- Mineral oil according to DIN 51524 - other media on request

Contamination Level for Pressure Medium

- Max. class 9 in accordance with NAS1638

Pressure Media Temperature Range

- Min = -10 °C, max = +70 °C

Viscosity Range

- Min = 10 mm²/s, max = 100 mm²/s

Electrical characteristics

Voltage Range

- 1-phase alternating current 230 V / 50 / 60 Hz
- 3-phase alternating current, 380-420 V, 50 Hz; 440-480 V, 60 Hz
- 3-phase alternating current, 220-240 V, 50 Hz; 220-280 V, 60 Hz

Power

- P1 = 300 W

Drive Speed

- 2,800 min with 50 Hz

Duty Cycle

- Interval operation S3-10%

Electrical Connection

- Cable with cable end sleeves

Electromagnetic compatibility (EMC)

- Resistance to interferences EN 61000-6-1 and EN 61000-6-2
- Emissions EN 61000-6-3 and EN 61000-6-4

Overload protection (Thermal Winding Protection TW)

- Temperature switch opens when reaching the shutdown temperature

- Switching tolerance ± 5 K
- Reset temperature > 35 °C

- Operating voltage max. 500 VAC

Nominal switching capacity

- 500 VAC - 6.3 A
- 24 VDC - 1.0 A



PCBT-3200 + LPU HR080



PCBT-3200 + LPU HR120



Motor Characteristics

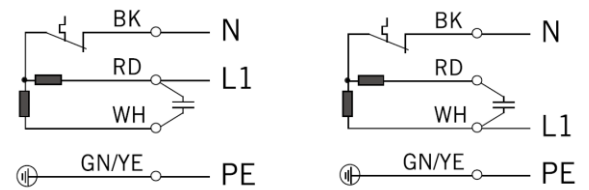
Motor 230 V AC, 1-phasing

Current Consumption:

- Initial current max. 4A
- Nominal current max. 1,6A

Reverse direction of rotation

Thermal winding protection open at $T \geq 140^{\circ}\text{C}$



2Motor 230 V AC , 3-phasing

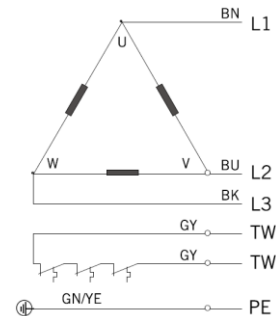
Voltage and Current Consumption:

- 220 - 240 V Δ ; 50 Hz, 0,85 A
- 220 - 280 V Δ ; 60 Hz, 0,5 A

For this connection: reverse action - looking on the shaft

Changing direction of rotation: exchange L2 and L3

TW = Thermal winding protection open at $T \geq 160^{\circ}\text{C}$



Motor 400 V AC , 3-phasing

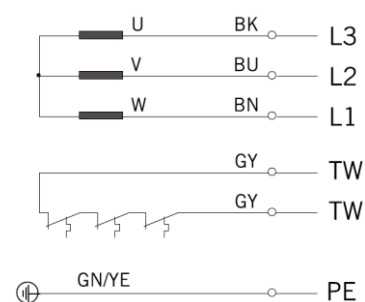
Voltage and Current Consumption:

- 380 - 420 V Y; 50 Hz, 0,55 A
- 440 - 480 V Y; 60 Hz, 0,5 A

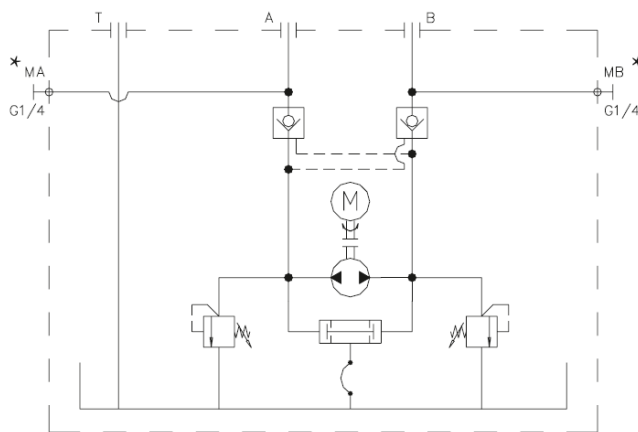
For this connection: reverse action - looking on the shaft

Changing direction of rotation: exchange L2 and L3

TW = Thermal winding protection open at $T \geq 160^{\circ}\text{C}$



Power Unit Hydraulic Diagram



*Only available on HR120 model.



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Operating Times

The operating time can be calculated from the oil displacement of the hydraulic actuator.
The Local Power Unit (LPU) deviler an adjustable flow from 0, 24 to 0,52 l/min.

Note: there is an optional flow rate of 1.12 l/m.

This means, for example that an hydraulic actuator PCBT-3200 H20/60 can be opened in:

- Minimum operating time: $0,239 \text{ l} / 0,24 \text{ l} \times 60 \text{ sec.} = 59,75 \text{ seconds.}$
- Maximum operating time: $0,239 \text{ l} / 0,52 \text{ l} \times 60 \text{ sec.} = 27,58 \text{ seconds.}$

Operating times with LPU HR080

DN (mm)	Act. Model	Act. Size	LPU	Capacity of the Cylinder (l)		Min. Flow 0,24 l/m		Med. Flow 0,30 l/m		Max. Flow 0,52 l/m		Opt. Flow 1,12 l/m	
				to close	to open	close time (sec)	open time (sec)	close time (sec)	open time (sec)	close time (sec)	open time (sec)	close time (sec)	open time (sec)
40	PCBT-3200	H10/40	HR080	0,103	0,089	26	22	21	18	12	10	6	5
50	PCBT-3200	H10/40	HR080	0,103	0,089	26	22	21	18	12	10	6	5
65	PCBT-3200	H10/40	HR080	0,103	0,089	26	22	21	18	12	10	6	5
80	PCBT-3200	H10/40	HR080	0,103	0,089	26	22	21	18	12	10	6	5
100	PCBT-3200	H10/40	HR080	0,103	0,089	26	22	21	18	12	10	6	5
125	PCBT-3200	H10/40	HR080	0,103	0,089	26	22	21	18	12	10	6	5
150	PCBT-3200	H20/40	HR080	0,141	0,089	35	22	28	18	16	10	8	5
200	PCBT-3200	H20/50	HR080	0,221	0,166	55	42	44	33	26	19	12	9
250	PCBT-3200	H20/50	HR080	0,221	0,166	55	42	44	33	26	19	12	9
300	PCBT-3200	H20/50	HR080	0,221	0,166	55	42	44	33	26	19	12	9

*estimated times, informative only.

Operating times with LPU HR120

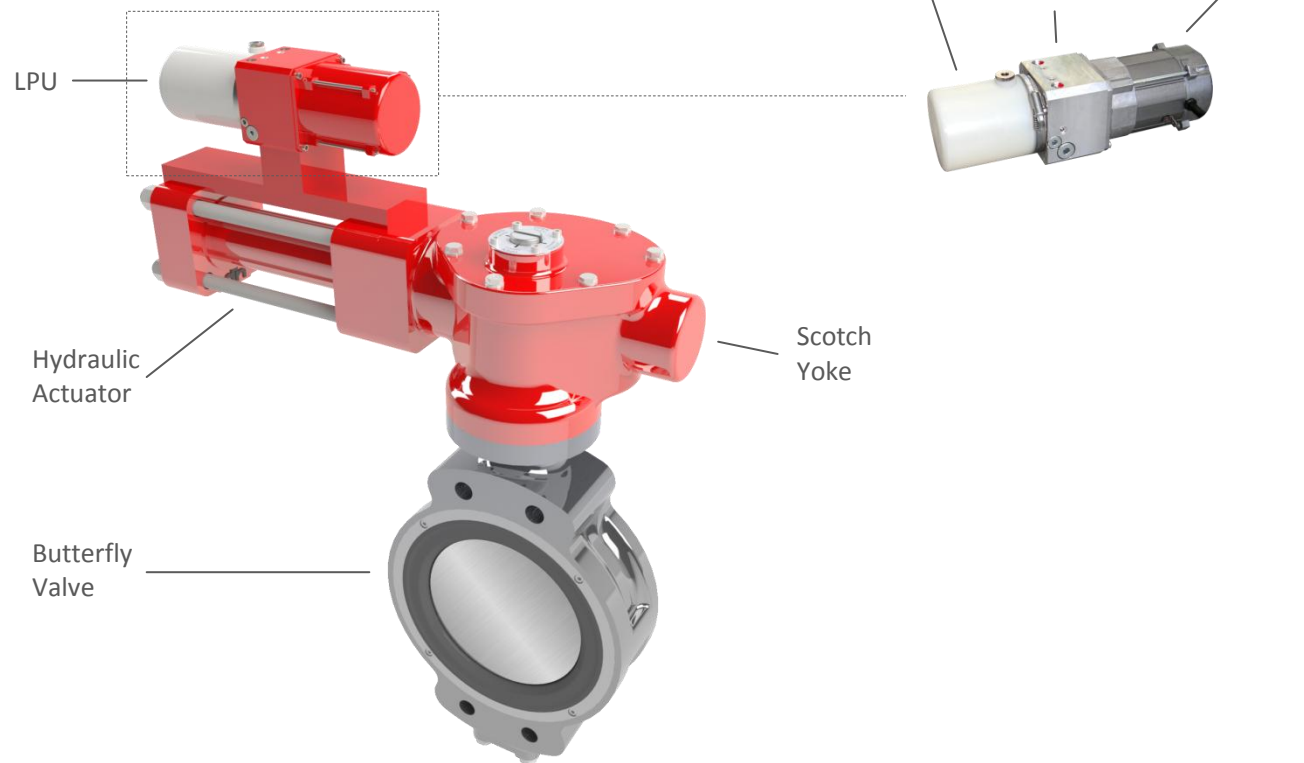
DN (mm)	Act. Model	Act. Size	LPU	Capacity of the Cylinder (l)		Min. Flow 0,24 l/m		Med. Flow 0,30 l/m		Max. Flow 0,52 l/m		Opt. Flow 1,12 l/m	
				to close	to open	close time (sec)	open time (sec)	close time (sec)	open time (sec)	close time (sec)	open time (sec)	close time (sec)	open time (sec)
40	PCBT-3200	H10/40	HR120	0,103	0,089	26	22	21	18	12	10	6	5
50	PCBT-3200	H10/40	HR120	0,103	0,089	26	22	21	18	12	10	6	5
65	PCBT-3200	H10/40	HR120	0,103	0,089	26	22	21	18	12	10	6	5
80	PCBT-3200	H10/40	HR120	0,103	0,089	26	22	21	18	12	10	6	5
100	PCBT-3200	H10/40	HR120	0,103	0,089	26	22	21	18	12	10	6	5
125	PCBT-3200	H10/40	HR120	0,103	0,089	26	22	21	18	12	10	6	5
150	PCBT-3200	H20/40	HR120	0,141	0,089	35	22	28	18	16	10	8	5
200	PCBT-3200	H20/50	HR120	0,221	0,166	55	42	44	33	26	19	12	9
250	PCBT-3200	H20/60	HR120	0,318	0,239	80	60	64	48	37	28	17	13
300	PCBT-3200	H30/60	HR120	0,409	0,307	102	77	82	61	47	35	22	16
350	PCBT-3200	H30/60	HR120	0,409	0,307	102	77	82	61	47	35	22	16
400	PCBT-3200	H30/60	HR120	0,409	0,307	102	77	82	61	47	35	22	16

*estimated times, informative only.



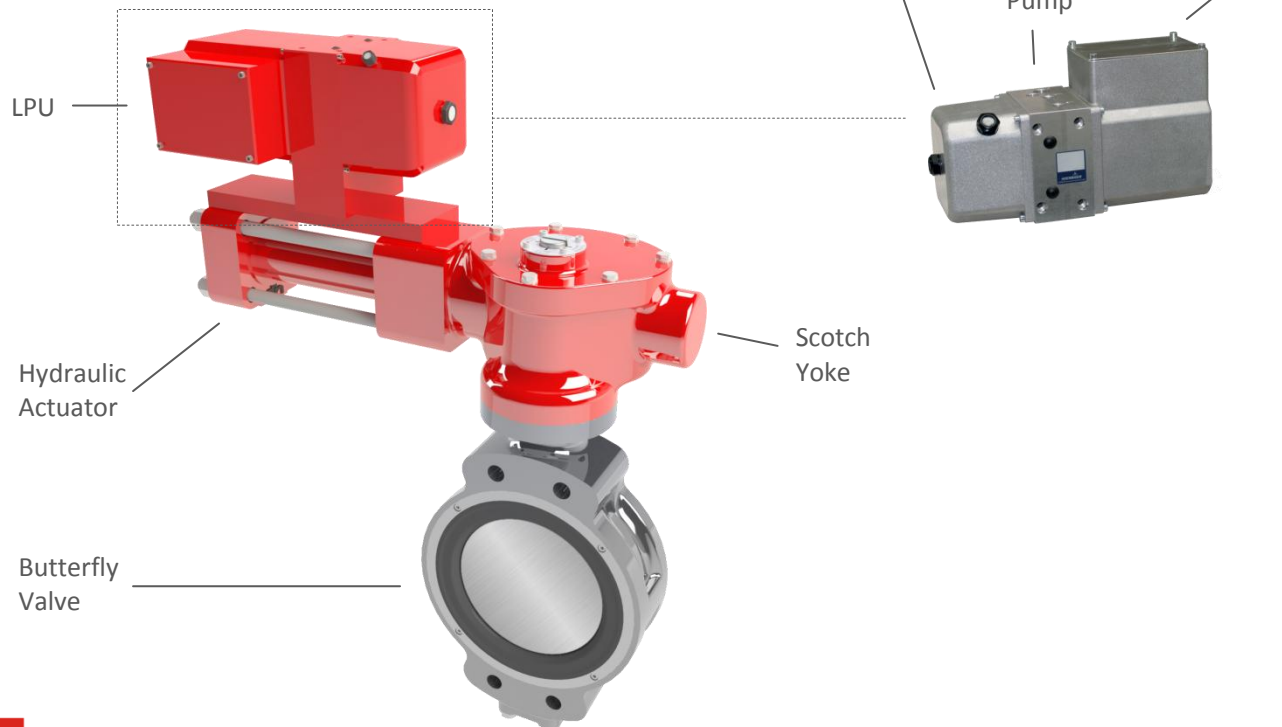
PTCBT-3200 + LPU HR080

Protection class IP40

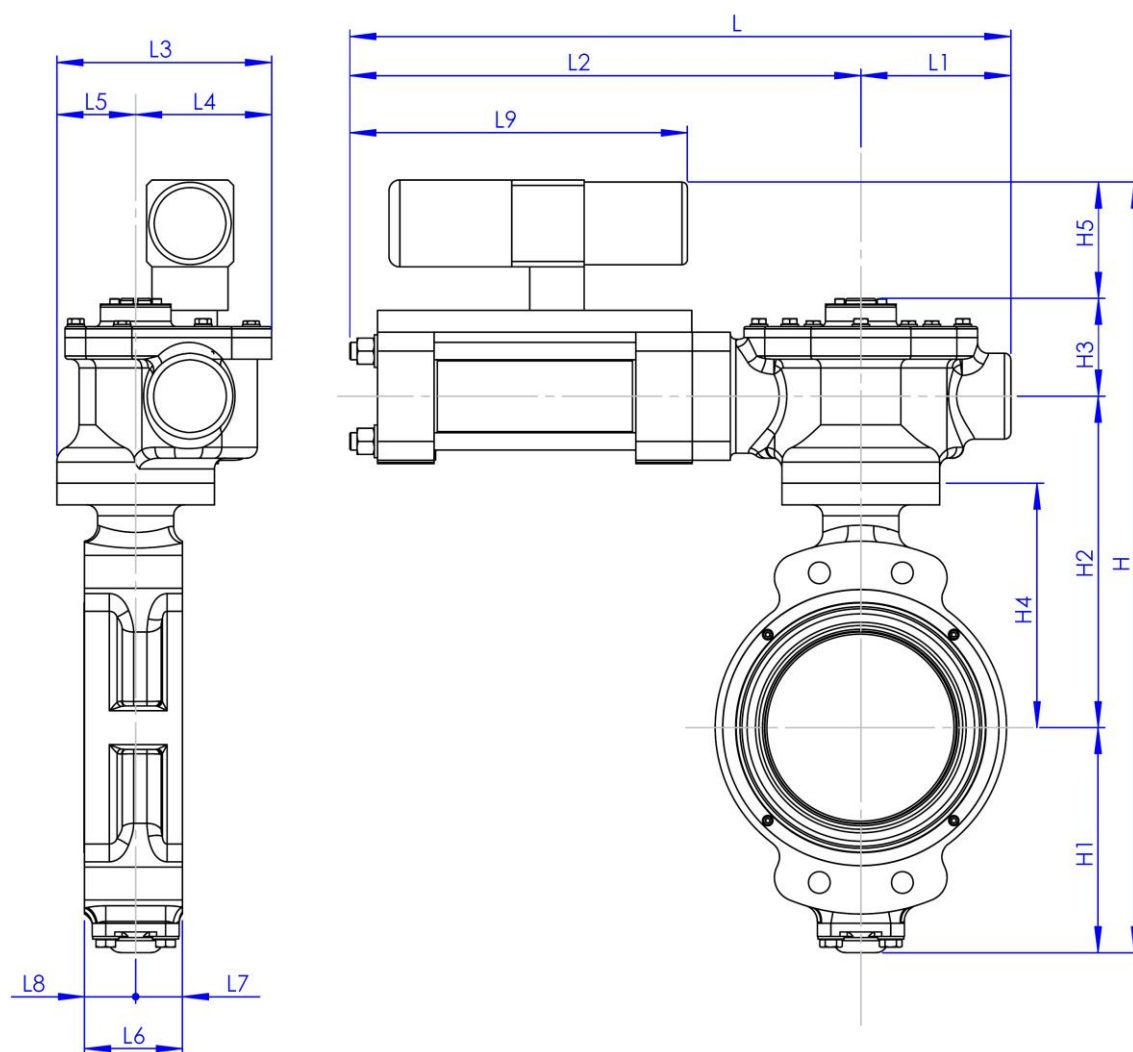


PTCBT-3200 + LPU HR120

Protection class IP67



General Dimensions for PCBT-3200 + LPU HR080

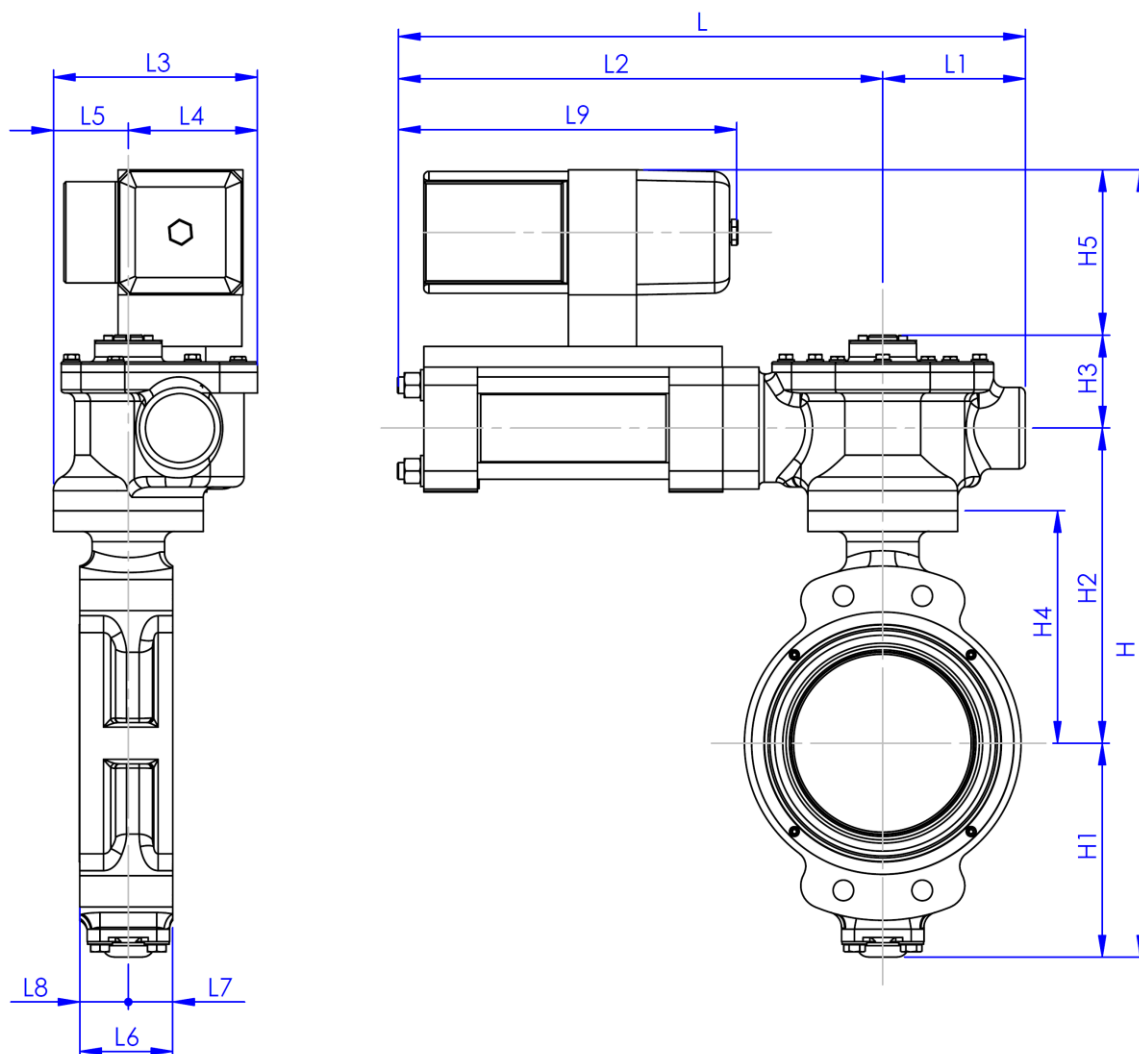


DN (mm)	Act. + LPU	H	H1	H2	H3	H4	H5	L	L1	L2	L3	L4	L5	L6	L7	L8	L9	WGT. (kg)
40	H10/40+HR080	385	50	160	55	105	120	425	85	340	145	95	50	33	16	17	270	25
50	H10/40+HR080	421	62	184	55	130	120	425	85	340	145	95	50	43	23	20	270	27
65	H10/40+HR080	415	63	177	55	123	120	425	85	340	145	95	50	46	23	23	270	28
80	H10/40+HR080	451	90	186	55	133	120	425	85	340	145	95	50	50	25	25	270	29
100	H10/40+HR080	477	105	197	55	144	120	425	85	340	145	95	50	50	25	25	270	30
125	H10/40+HR080	503	117	211	55	158	120	425	85	340	145	95	50	60	30	30	270	33
150	H20/40+HR080	640	163	272	90	194	115	610	138	472	198	125	73	70	34	36	310	54
200	H20/50+HR080	719	207	307	90	225	115	618	138	480	198	125	73	90	43	47	310	81
250	H20/50+HR080	799	247	347	90	265	115	618	138	480	198	125	73	110	59	51	310	95
300	H20/50+HR080	866	272	389	90	300	115	686	162	524	243	155	88	110	55	55	310	117

* Dimensions in mm. (Informative only).



General Dimensions for PCBT-3200 + LPU HR120



DN (mm)	Act. + LPU	H	H1	H2	H3	H4	H5	L	L1	L2	L3	L4	L5	L6	L7	L8	L9	WGT. (kg)
40	H10/40+HR120	440	50	160	55	105	175	460	85	375	145	95	50	33	16	17	304	26
50	H10/40+HR120	476	62	184	55	130	175	460	85	375	145	95	50	43	23	20	304	28
65	H10/40+HR120	470	63	177	55	123	175	460	85	375	145	95	50	46	23	23	304	29
80	H10/40+HR120	506	90	186	55	133	175	460	85	375	145	95	50	50	25	25	304	30
100	H10/40+HR120	532	105	197	55	144	175	460	85	375	145	95	50	50	25	25	304	31
125	H10/40+HR120	558	117	211	55	158	175	460	85	375	145	95	50	60	30	30	304	34
150	H20/40+HR120	684	163	272	89	194	160	610	138	472	198	125	73	70	34	36	328	55
200	H20/50+HR120	763	207	307	89	225	160	618	138	480	198	125	73	90	43	47	328	82
250	H20/60+HR120	843	247	347	89	265	160	618	138	480	198	125	73	110	59	51	328	96
300	H30/60+HR120	920	272	389	89	300	170	686	162	524	243	155	88	110	55	55	340	117
350	H30/60+HR120	1000	322	419	89	330	170	686	162	524	243	155	88	120	60	60	340	143
400	H30/60+HR120	1065	342	464	89	365	170	831	231	600	288	190	98	130	60	70	340	201

* Dimensions in mm. (Informative only).



Order instructions

Complete reference to order electro-hydraulic actuator with butterfly valve

(1) - PCBT-3200 - (2) - LPU - (3) - (4) - (5)

Partial reference to order only electro-hydraulic actuator

(1)* Valve Size DN (mm)	Actuator Model	(2) Actuator Size	(3) LPU Model Protection class IP40	(3) LPU Model Protection class IP67
40	PCBT-3200	H10/40	HR080	HR120
50	PCBT-3200	H10/40	HR080	HR120
65	PCBT-3200	H10/40	HR080	HR120
80	PCBT-3200	H10/40	HR080	HR120
100	PCBT-3200	H10/40	HR080	HR120
125	PCBT-3200	H10/40	HR080	HR120
150	PCBT-3200	H20/40	HR080	HR120
200	PCBT-3200	H20/50	HR080	HR120
250	PCBT-3200	H20/50 ^A or H20/60 ^B	HR080 ^A	HR120 ^B
300	PCBT-3200	H20/50 ^A or H30/60 ^B	HR080 ^A	HR120 ^B
350	PCBT-3200	H30/60	-	HR120
400	PCBT-3200	H30/60	-	HR120

*In case you request also the butterfly (1) please add a small description defining body type, pressure class/flange connection standard, materials of the body, disc, shaft, seat and any other information you may consider relevant.

(4) - Volume flow at 2800 rpm:

02 - 0,24 l/m

03 - 0,32 l/m

04 - 0,52 l/m

(5) - Motor design:

W1 - 1-phase alternating current 230 V / 50 / 60 Hz

A2 - 3-phase alternating current, 380-420 V, 50 Hz; 440-480 V, 60 Hz

A5 - 3-phase alternating current, 220-240 V, 50 Hz; 220-280 V, 60 Hz

Order example:

DN100 - PCBT-3200 - H10/40 - LPU - HR080 - 03 - A2

*Butterfly valve, wafer type, class 150, body-disc-shaft in stainless steel AISI316, seat in NBR.

** Saltwater-proof Special Paint

Optional settings by request	
Other operating pressures (up to 210 bar)	Temperature Overpressure Valves
ATEX Motor	Saltwater-proof Special Paint
Flow Rate up to 1.12 l/min	Protection up to IP 68
Tank Volume up to 1.9 l	Other Motor Voltages

**To order optional settings please included full description as above.

