

Hydraulic Actuator

Single Acting and Double Acting

Electro-Hydraulic Actuator

Single Acting and Double Acting

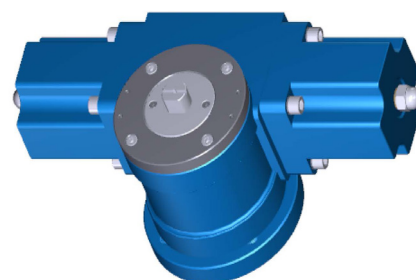
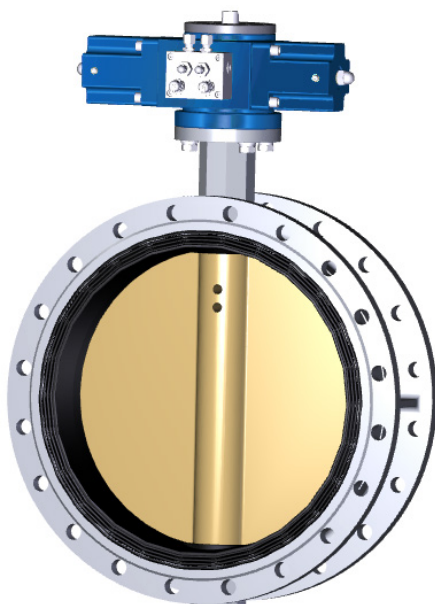
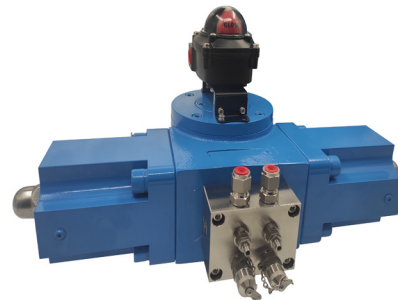
Hydraulic Actuator Double Acting

Technical Data

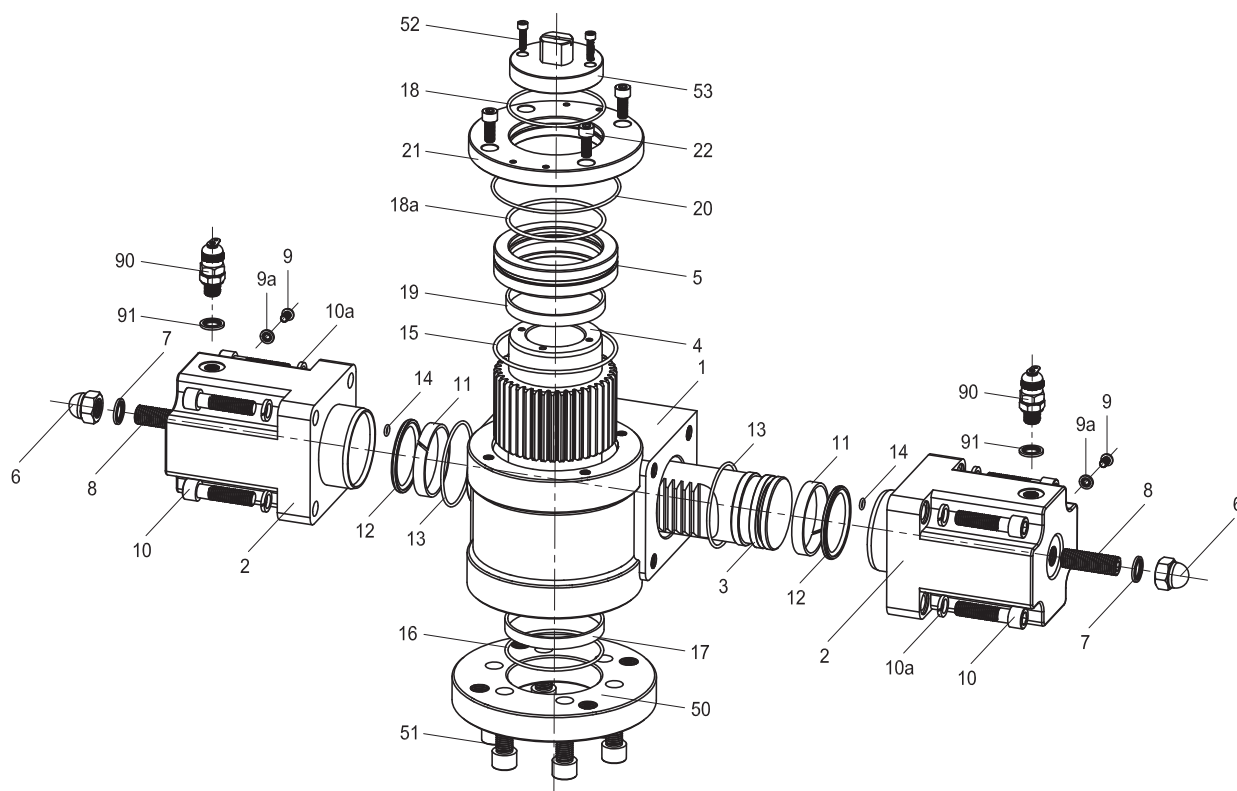
- Rotation: $90^\circ \pm 5$
- Closing direction: Clockwise as default
- Dry mounting coating:
 - Epoxy primer: 40+ micron
 - Epoxy top: 40+ micron
 - Total film thickness: 80 micron or above
- Submerged mounting coating
 - Primer: 1x50 with inorganiz zinc ethyl silicate
 - Intermediate: 3x50 with epoxy-polyamide intermediate-finish
 - Top coat: 1x50 with polyurethane polyester-isocyanate finish
 - Total film thickness: 250micron or above
- Male stud coupling: OD8 or OD10
- The AVA HD series actuators are designed for pipe connection to the G1/4 actuator port. The control block would be on the actuator according to the applications.

Highlights

- Unique and simple design
- Less footprint, less weight and lower maintenance required
- Local position indication available
- Easy mounted to all quarter-turn valves
- Any position mounting from horizon to vertical
- Satisfies all requirements by major class societies
- Suit dry or submerged mounting



Hydraulic Actuator Double Acting



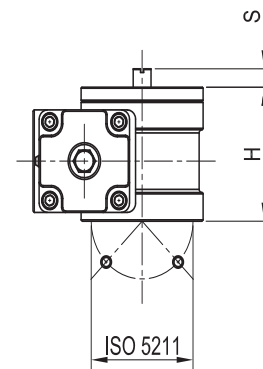
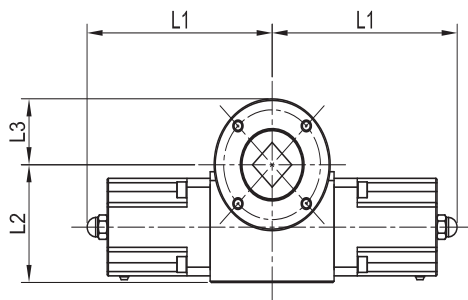
O	K	No	Description	Material	Quantity
		1	Body	Ductile Iron GGG45	1
		2	End Cap	Steel C45	2
		3	Piston Rack	Alloy Steel 41Cr4	1
		4	Pinion	Alloy Steel 41Cr4	1
		5	Pinion Cap	Alloy Steel 41Cr4	1
		6	Adjustment Cap	SUS316	2
K		7	Bleed Nut	POM	2
		8	Adjustment Screw	Steel 12.9	2
		9	Bleed Screw	SUS316	2
K		9a	Flat Washer	POM	2
		10	Endcap Screw	Steel 12.9	8
		10a	Spring Washer	65Mn	8
K		11	Guide Ring	CDSTEX	2
K		12	Piston Seal	Reinforced POM+NBR	2
K		13	O Ring	NBR	2
K		14	O Ring	NBR	2
K		15	O Ring	NBR	1

O	K	No	Description	Material	Quantity
K		16	O Ring	NBR	1
K		17	Guide Ring	CDSTEX	1
K		18	O Ring	NBR	1
K		18a	O Ring	NBR	1
K		19	Guide Ring	CDSTEX	1
K		20	O Ring	NBR	1
		21	Upper Flange	Steel C45	1
		22	Flange Screw	SUS316	1
O		50	Middle Flange	Steel C45	1
O		51	Middle Flange Screw	Steel 12.9	6
O		52	Indicator Cover Screw	SUS316	4
O		53	Indicator Cover	Steel C45	1

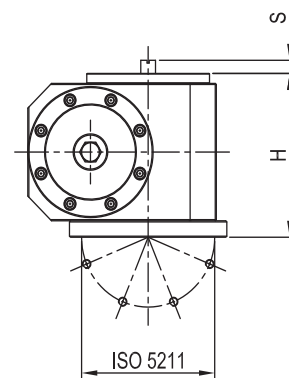
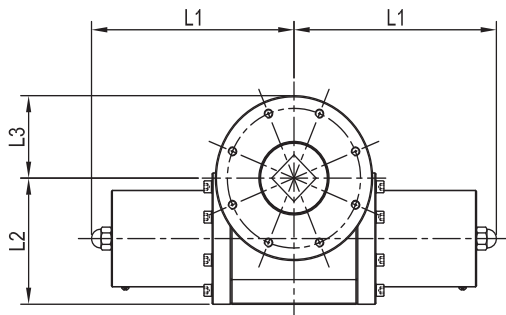
O The item is different in different application such as dry installation or submerged installation.
K Spare kit parts to be renewed each overhaul maintenance

Hydraulic Actuator Double Acting

AVA.HD28 ~ 100 Outline



AVA.HD125 & 160 Outline



Actuator	Torque ²⁾	Stroke Volume	L1	L2	L3	H	S	Flange	Weight
Type	[Nm]	[cm ³]	[mm]	[mm]	[mm]	[mm]	[mm]	ISO 5211	[kg]
AVA.HD28	201	29	170	85	45	110	20	F05*/F07	14
AVA.HD40	411	59	175	85	45	110	20	F07/F10 ^{*1)}	15
AVA.HD50	643	93	180	85	45	110	20	F10*/F12*	18
AVA.HD63	1701	245	239	134	75	145	20	F12/F14*	44
AVA.HD80	2740	395	261	134	75	145	20	F14*/F16*	55
AVA.HD100	4717	678	296	160	88	166	20	F16*	84
AVA.HD125	10720	1540	390	230	150	298	20	F25*	130
AVA.HD200	17560	2524	435	270	175	358	20	F30*	180

1) Flange marked * such as F10* achieved by middle flange. Other flange enquiry to API Marine.

2) Torque on working pressure 11.5Mpa.

Hydraulic Actuator Single Acting



Technical Data

- Rotation: $90^\circ \pm 5$
- Closing direction: Clockwise
- Dry mounting coating:
 - Epoxy primer: 40+ micron
 - Epoxy top: 40+ micron
 - Total film thickness: 80 micron or above
- Submerged mounting coating:
 - Primer: 1x50 with inorganic zinc ethyl silicate
 - Intermediate: 3x50 with epoxy-polyamide intermediate-finish
 - Top coat: 1x50 with polyurethane polyester-isocyanate finish
 - Total film thickness: 250 micron or above
- Male stud coupling: OD8 or OD10
- The AVA HS actuators are designed for pipe connection to the G1/4 actuator port. For further information please see separate data sheet of control blocks.

Hydraulic Oil

- Viscosity range 15 to 64 cSt. according to thermal environment

Material

- Rotation: $90^\circ \pm 5$
- Body: GGG45
- Option: St.st.316L
- Pinion/Rack: Alloy Steel 41Cr4
- Cylinder: Steel C45
- Cap Nuts: Stainless steel
- Indicator: Aluminum for dry mounting.
Stainless steel with sight glass for submerged mounting

Applications

- Fresh water; Sea water; Fuel oil; Chemical and special order
- Dry or submerged installation
- Mounting on horizon or vertical or any position

Flushing

- After assembly each actuator is flushed according to NAS 1638/9 standard before delivery
- NAS 1638/7 or NAS 1638/8 available on special requirement

Highlights

- Unique and simple design
- Less footprint, less weight and lower maintenance required
- Spring action by means of disc spring
- Local position indication available
- Easy mounted to all quarter-turn valves
- Unlimited mounting positions
- Spring close(SC) or spring open (SO) selectable.
- Large torque up to 13,720Nm available upon the special requirements.

Working Pressure

- 6.0 ~ 13.0 Mpa
- Preset 11.5 Mpa if without special requirement

Working Temperature

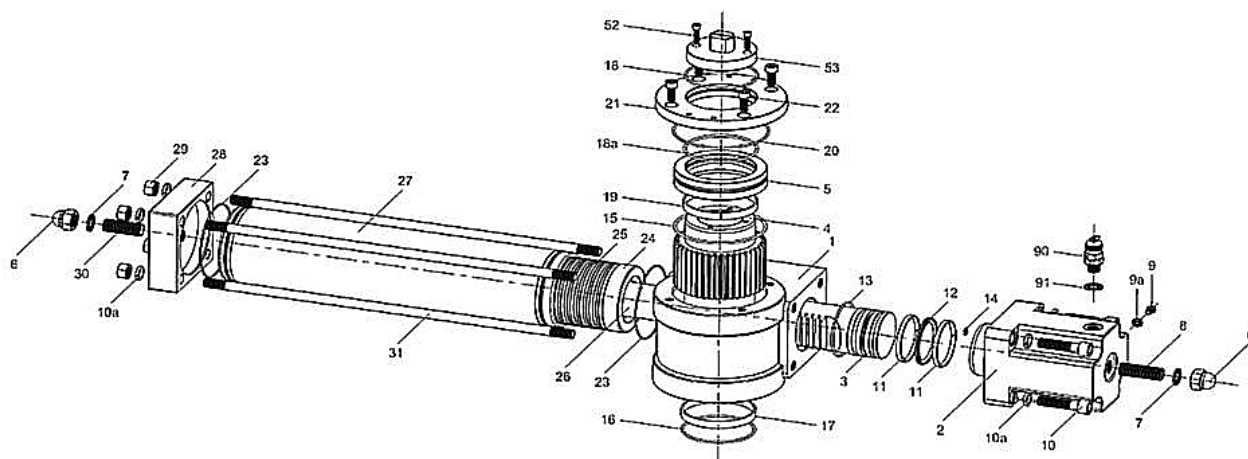
- NBR Sealing (standard) : -20°C to 70°C
- Viton Sealing (Option) : -40°C to 145°C

Options

- Sea water resistant shaft
- Male stud coupling in stainless steel
- Electric limit switches IP 65, IP 68 or IP 67 Ex.
- Proximity switches IP 68
- Position Indication by volume indicator or pressure switches
- Control block
- Special coating for submerged conditions

Hydraulic Actuator

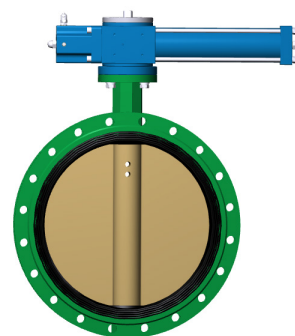
Single Acting



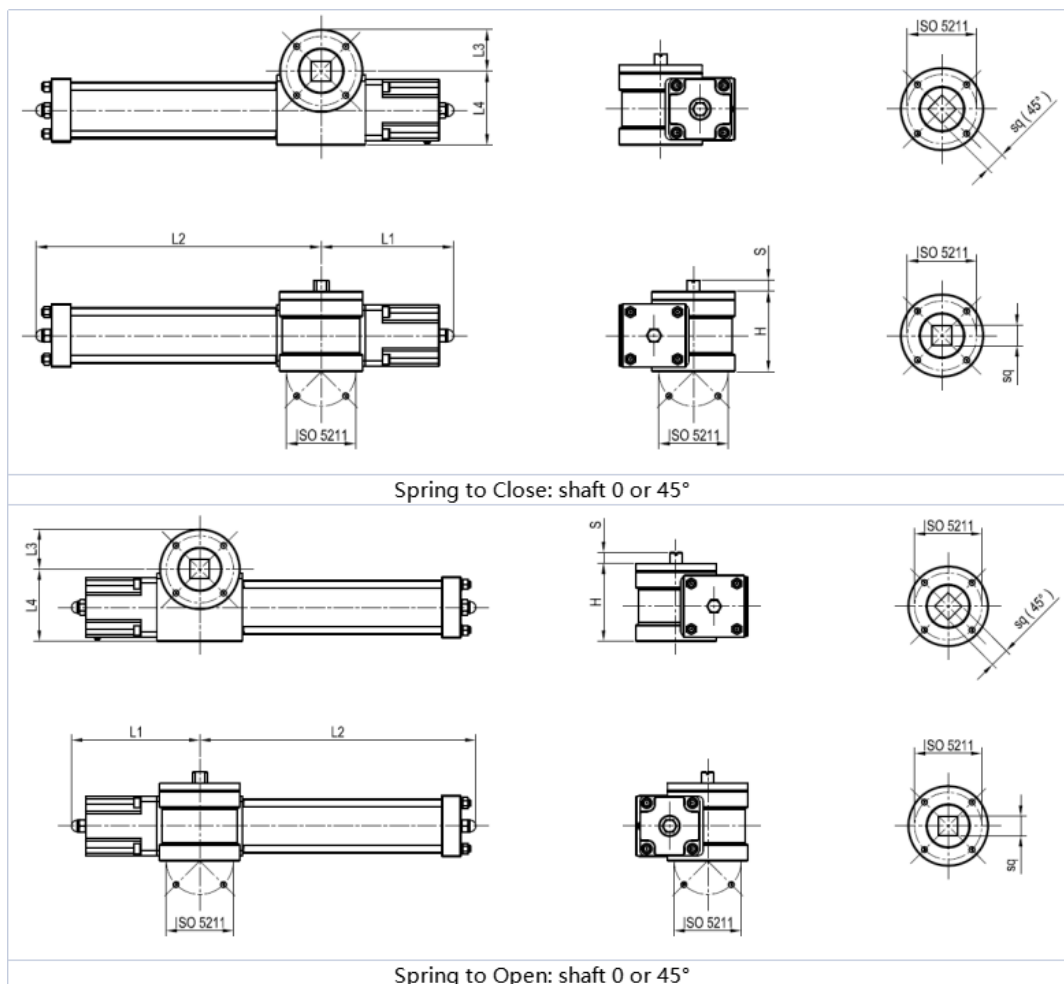
O K	No	Description	Material	Quantity
O K	NO	DESCRIPTION	MATERIAL	QUANTIT
	1	Body	Ductile Iron GGG45	1
	2	End Cap	Steel C45	2
	3	Piston Rack	Alloy Steel 41Cr4	1
	4	Pinion	Alloy Steel 41Cr4	1
	5	Pinion Cap	Alloy Steel 41Cr4	1
	6	Adjustment Cap	SUS316	2
K	7	Bleed Nut	POM	2
	8	Adjustment Screw	Steel 12.9	2
	9	Bleed Screw	SUS316	2
K	9a	Flat Washer	POM	2
	10	Endcap Screw	Steel 12.9	8
	10a	Spring Washer	65Mn	8
K	11	Guide Ring	CDSTEX	2
K	12	Piston Seal	Reinforced POM+NBR	2
K	13	O Ring	NBR	2
K	14	O Ring	NBR	2
K	15	O Ring	NBR	1
K	16	O Ring	NBR	1
K	17	Guide Ring	CDSTEX	1
K	18	O Ring	NBR	1
K	18a	O Ring	NBR	1
K	19	Guide Ring	CDSTEX	1
K	20	O Ring	NBR	1

O K	No	Description	Material	Quantity
	21	Upper Flange	Steel C45	1
	22	Flange Screw	SUS316	1
	23	O Ring	NBR	2
	24	Spring Piston	BRASS	1
	25	Spring	60S12MnA	60
	26	Spring Piston Bar	C45	1
	27	Spring Barrel	C45	1
	28	Spring Cap	C45	1
	29	Barrel Screw	SS316	4
	30	Adjustment Screw	Steel 12.9	1
	31	Screw	C45	4
O	52	Indicator Cover Screw	SUS316	4
O	53	Indicator Cover	Steel C45	1
O	90	Quick Connector	SS316	2
O	91	Quick connector Washer	NBR	2

O The item is different in different application such as dry installation
 K Spare kit parts to be renewed each overhaul maintenance



Hydraulic Actuator Single Acting



Torque and dimensions

Actuator	Torque ²⁾ [Nm]		Volume	L1	L2	L3	L4	H	S	Flange	Weight
Type	Open	Close	[cm ³]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	ISO 5211	[kg]
AVA.HS 40 SC	145	128	59	181	383	45	87	110	20	F05 ¹⁾ /F07	16
AVA.HS 40 SO	128	145	59	181	383	45	87	110	20	F05 ¹⁾ /F07	16
AVA.HS 63 SC	588	430	245	239	514	75	134	145	20	F07 [*] /F10	58
AVA.HS 63 SO	430	588	245	239	514	75	134	145	20	F07 [*] /F10	58
AVA.HS 90 SC	1280	1150	678	281	760	88	160	166	20	F12 [*] /F14	95
AVA.HS 90 SO	1150	1280	678	281	760	88	160	166	20	F12 [*] /F14	95

1) Flange with mark * achieved by middle flange (p/n 50).

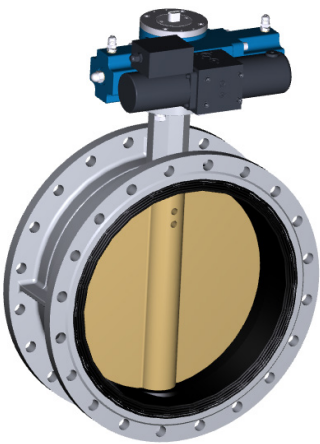
2) The torque value on working pressure 11.5Mpa

**** The single acting actuator max torque available 17,560Nm. Details contact API Marine.

UPU

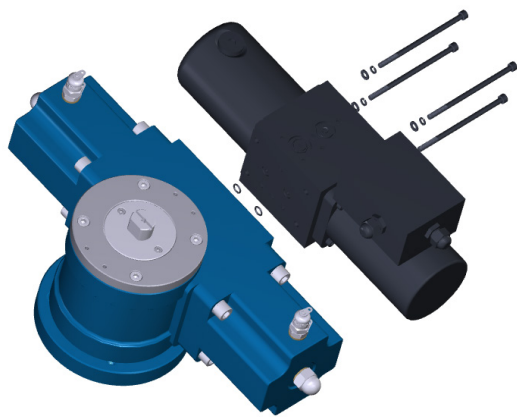
Double Acting Power Unit

- Special designed for marine double acting hydraulic actuator and perfect fit to AVA.HD series. Changing the location of Port A & B as well as the arrangement of the tighten screw it would fit to any type double acting actuator.
- Simple construction to pursue 0 faulty and economical cost. The maintenance keeps as low as timely inspection.
- Low requirements to the operator. To change the whole UPU it takes a few minutes only to dismantle the screw and unwire the cable.
- NAS 1638/7 flushing before dispatch.



UPU Type	UPU20			UPU30		
Applicable	AVA.HD28	AVA.HD40	AVA.HD50	AVA.HD63	AVA.HD80	AVA.HD100
Typical Valve Size	DN150	DN250	DN300	DN500	DN600	DN900
Time of Open/Close	4S	8S	12S	16S	26S	45S

Shows the time in shortest of 50Hz motor. It is adjustable.

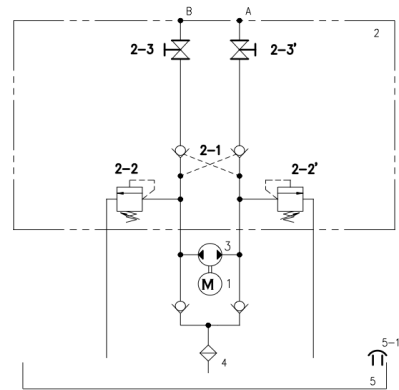


- Both the connection between the UPU and hydraulic actuator, the actuator and the valve are intuitionistic and visualable. Everyone could make that in minutes after a simple training.
- All controls locate in upper cabinet and the electronic parts inside the UPU try as less as possible to reduce the faulty rate due to harsh environment. 0 faulty is our target in every step.

UPU

Double Acting Power Unit

No	Description	Q'ty	Specification
5-2	Breather	1	1/2"
5	Oil Tank	1	0.75L Round Steel
4	Inlet Filter	1	
3	Pump	1	Gear Pump
2-3	Needle Valve	2	NVUM1-32NN
2-2	Relief Valve	2	115bar
2-1	Pilot Check Valve	2	Cracking Pressure 3bar
2	Centre Block	1	SCB096
1	Motor	1	AC220V Single Phase 300W IP67



UPU20

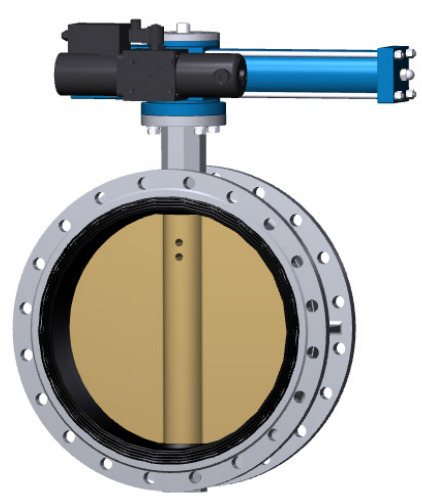
UPU30

Motor		
Voltage:	230VAC	230VAC
Frequency:	50/60Hz	50/60Hz
Power:	0.3kW	0.3kW
IP Level	IP65	IP65
Pump		
Type:	Gear Pump	Gear Pump
Capacity per rev:	0.19 cc / rev	0.38 cc / rev
Capacity per min 50Hz:	0.47 L / min	0.94 L / min
Capacity per min 60Hz:	0.56 L / min	1.12 L / min
Tank - line to extra oil tank allowed		
Material:	Steel	Steel
Usable Size:	0.75 L	0.75 L
Valve - pressure ajustable		
Pre-setting(relief)	115bar	115bar
Installation		
Vertical or Horizontal mounting free, any posiotion		
Working Temperature		
-15 ~ +60°C		

UPU.S

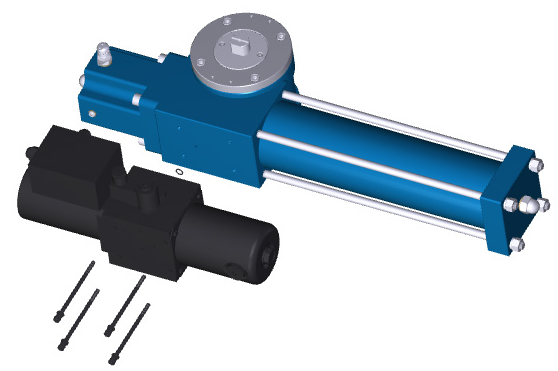
Single Acting Power Unit

- UPU.S shares the same design philosophy with double acting power unit UPU and share the major parts like the motor, pump, tank and etc. UPU.S own same character with UPU as below:
- Simple construction to pursue 0 faulty and economical cost. The maintenance keeps as low as timely inspection.
- Low requirements to the operator. To change the whole UPU it takes a few minutes only to dismantle the screw and unwire the cable.
- NAS 1638/7 flushing before dispatch.
- Perfect fits AVA.HS series single acting hydraulic actuators. Changing the location of hydraulic port as well as the arrangement of the tighten screw it would fit to any type single acting actuator.



UPU.S Type	UPU.S20	UPU.S30	
Applicable	AVA.HS40	AVA.HS63	AVA.HS90
Time of Open/Close	8S	16S	40S

Shows the time in shortest of 50Hz motor. It is adjustable.

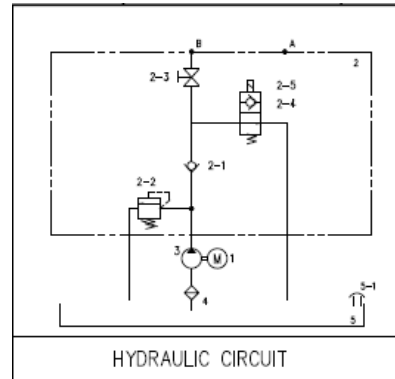


- Both the connection between the UPU-S and hydraulic actuator, the actuator and the valve are intuitionistic and visualable. Everyone could make that in minutes after a simple training.
- All controls locate in upper cabinet and the electronic parts inside the UPU try as less as possible to reduce the faulty rate due to harsh environment. 0 faulty is our target in every step.

UPU.S

Single Acting Power Unit

No	Description	Q'ty	Specification
5-1	Breather	1	1/2"
5	Oil Tank	1	0.8L Round Steel
4	Inlet Filter	1	
3	Pump	1	Gear Pump
2-4	Solenoid Valve	1	24VDC
2-3	Needle Valve	1	NVUM1-32NN
2-2	Relief Valve	1	115bar
2-1	Pilot Check Valve	1	Cracking Pressure 3bar
2	Centre Block	1	SCB096
1	Motor	1	AC220V Single Phase 300W IP67

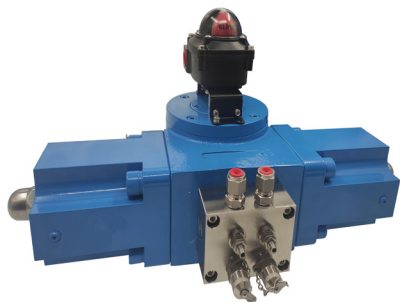


UPU.S20

UPU.S30

Motor		
Voltage:	230VAC	230VAC
Frequency:	50/60Hz	50/60Hz
Power:	0.3kW	0.3kW
IP Level	IP65	IP65
Pump		
Type:	Gear Pump	Gear Pump
Capacity per rev:	0.19 cc / rev	0.38 cc / rev
Capacity per min 50Hz:	0.47 L / min	0.94 L / min
Capacity per min 60Hz:	0.56 L / min	1.12 L / min
Tank - line to extra oil tank allowed		
Material:	Steel	Steel
Usable Size:	0.75 L	0.75 L
Valve - pressure ajustable		
Pre-setting(relief)	115bar	115bar
Installation		
Vertical or Horizontal mounting free, any posiotion		
Working Temperature		
-15 ~ +60°C		

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Hydraulic Part Turn		H				
Hydraulic Linear		L				
Hydro-electronic Part Turn		T				
Double Acting		D				
Single Acting		S				
Cylinder Diameter 28mm				28		
Cylinder Diameter 40mm				40		
Cylinder Diameter 50mm				50		
Cylinder Diameter 63mm				63		
Cylinder Diameter 80mm				80		
Cylinder Diameter 100mm				100		
Cylinder Diameter 125mm				125		
Cylinder Diameter 80mm x4				160		
Cylinder Diameter 100mm x4				200		
Dry Installation				D		
Submerged Installation				W		
With mechanical indication on top of actuator				G		





With state-of-the-art technology we bring efficiency to our customers

API Marine is a house of competence, where development, design and production processes are united in unique solutions for advanced tank control. Complete liquid cargo control systems can be supplied – from sensors in the tank and operators' stations to the calculation software, all fulfilling IMO requirements. API Marine is certified according to ISO 9001:2015 and our products carry the ATEX PQAN approval.

We want to contribute to our customer's profitability by supplying high quality products, excellent service and state-of-the-art high-tech solutions, where reliability and durability are keywords!

