Modular Type Lubricator
AL Series

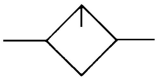
Lubricator
AL Series

Pages 83 to 90

Model	Port size	Option
AL10-A	M5 x 0.8	Bracket (Except AL10-A)
AL20-A	1/8, 1/4	
AL30-A	1/4, 3/8	
AL40-A	1/4, 3/8, 1/2	
AL40-06-A	3/4	
AL50-A	3/4, 1	
AL60-A	1	

Lubricator
AL10-A to AL60-A

Symbol



AL10-A AL20-A AL40-A

How to Order

AL ❶**30** – ❷ ❸**03** ❹**B** – ❺ **–A**

- Option/Semi-standard: Select one each for **a** to **d**.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.

Example) AL30-03B-3RW-A

		Symbol	Description	❶ Body size 10	20	30	40	50	60
❷	Pipe thread type	**Nil**	Metric thread (M5)	●	—	—	—	—	—
			Rc	—	●	●	●	●	●
		N	NPT	—	●	●	●	●	●
		F	G	—	●	●	●	●	●
		+							
❸	Port size	**M5**	M5 x 0.8	●	—	—	—	—	—
		01	1/8	—	●	—	—	—	—
		02	1/4	—	●	●	●	—	—
		03	3/8	—	—	●	●	—	—
		04	1/2	—	—	—	●	—	—
		06	3/4	—	—	—	●	●	—
		10	1	—	—	—	—	●	●
		+							
❹	Option (Mounting)	**Nil**	Without mounting option	●	●	●	●	●	●
		B∗1	With bracket	—	●	●	●	●	●
		+							
❺	Semi-standard	**a** Bowl ∗2 ∗3	**Nil**	Polycarbonate bowl	●	●	●	●	●	●
			2	Metal bowl	●	●	●	●	●	●
			6	Nylon bowl	●	●	●	●	●	●
			8	Metal bowl with level gauge	—	—	●	●	●	●
			C	With bowl guard	—	●	—∗4	—∗4	—∗4	—∗4
			6C	With bowl guard (Nylon bowl)	—	●	—∗5	—∗5	—∗5	—∗5
		+							
		b Lubricant exhaust port	**Nil**	Without drain cock	●	●	●	●	●	●
			3	With drain cock	●	●	●	●	●	●
			3W∗6	Drain cock with barb fitting	—	—	●	●	●	●
		+							
		c Flow direction	**Nil**	Flow direction: Left to right	●	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●	●
		+							
		d Pressure unit	**Nil**	Name plate and caution plate: MPa	●	●	●	●	●	●
			Z∗7	Name plate and caution plate: psi, °F	○∗8	○∗8	○∗8	○∗8	○∗8	○∗8

∗1 Option is not assembled and supplied loose at the time of shipment.
∗2 Refer to chemical data on page 86 for chemical resistance of the bowl.
∗3 Refer to page 89 for 1000 cm^3 tanks.
∗4 A bowl guard is provided as standard equipment (polycarbonate).
∗5 A bowl guard is provided as standard equipment (nylon).
∗6 The combination of metal bowl: 2 and 8 is not available.
∗7 For pipe thread type: M5, NPT. This product is for overseas use only according to the new Measurement Act. (The SI unit type is provided for use in Japan.)
∗8 ○: For pipe thread type: M5, NPT only

Standard Specifications

Model	AL10-A	AL20-A	AL30-A	AL40-A	AL40-06-A	AL50-A	AL60-A
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air						
Ambient and fluid temperature	–5 to 60°C (with no freezing)						
Proof pressure	1.5 MPa						
Maximum operating pressure	1.0 MPa						
Minimum dripping flow rate [L/min (ANR)] ∗1	4	15	1/4: 30 3/8: 40	1/4: 30 3/8: 40 1/2: 50	50	190	220
Oil capacity [cm³]	7	25	55	135			
Recommended lubricant	Class 1 turbine oil (ISO VG32)						
Bowl material	Polycarbonate						
Bowl guard	—	Semi-standard (Steel)	Standard (Polycarbonate)				
Weight [kg]	0.07	0.10	0.20	0.38	0.43	0.94	1.09

∗1 · The flow rate is 5 drops or greater/min under the following conditions: Inlet pressure of 0.5 MPa; Class 1 turbine oil (ISO VG32); Temperature at 20°C; Oil adjustment valve fully open.
· For a circuit that repeatedly turns ON and OFF on the outlet side, make the adjustment so that the average air consumption per minute becomes the minimum dripping flow rate or more.

Option/Part No.

Optional specifications	Model						
	AL10-A	**AL20-A**	**AL30-A**	**AL40-A**	**AL40-06-A**	**AL50-A**	**AL60-A**
Bracket assembly ∗1	—	AF22P-050AS	AF32P-050AS	AF42P-050AS	AF42P-070AS	AF52P-050AS	

∗1 Assembly of a bracket and 2 mounting screws

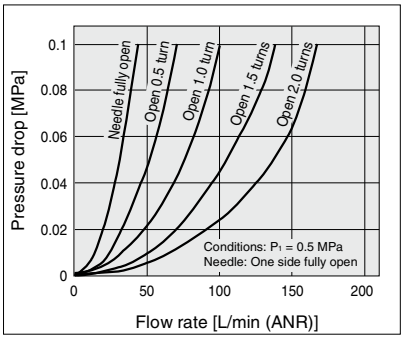
Bowl Assembly/Part No.

Bowl material	Lubricant exhaust port	Other	Model						
			AL10-A	**AL20-A**	**AL30-A**	**AL40-A**	**AL40-06-A**	**AL50-A**	**AL60-A**
Polycarbonate	Without drain cock	—	C1SL-A	C2SL-A	—	—			
		With bowl guard	—	C2SL-C-A	C3SL-A	C4SL-A			
	With drain cock	—	C1SL-3-A	C2SL-3-A	—	—			
		With bowl guard	—	C2SL-3C-A	C3SL-3-A	C4SL-3-A			
	Drain cock with barb fitting	With bowl guard	—	—	C3SL-3W-A	C4SL-3W-A			
Nylon	Without drain cock	—	C1SL-6-A	C2SL-6-A	—	—			
		With bowl guard	—	C2SL-6C-A	C3SL-6-A	C4SL-6-A			
	With drain cock	—	C1SL-36-A	C2SL-36-A	—	—			
		With bowl guard	—	C2SL-36C-A	C3SL-36-A	C4SL-36-A			
	Drain cock with barb fitting	With bowl guard	—	—	C3SL-36W-A	C4SL-36W-A			
Metal	Without drain cock	—	C1SL-2-A	C2SL-2-A	C3SL-2-A	C4SL-2-A			
		With level gauge	—	—	C3LL-8-A	C4LL-8-A			
	With drain cock	—	C1SL-23-A	C2SL-23-A	C3SL-23-A	C4SL-23-A			
		With level gauge	—	—	C3LL-38-A	C4LL-38-A			

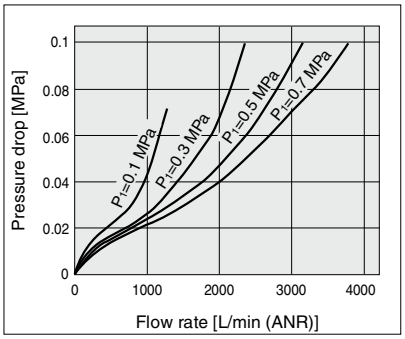
∗ · Bowl seal is included for the AL20-A to AL60-A.
· Please consult with SMC separately for psi and °F unit display specifications.

Flow Rate Characteristics (Representative values)

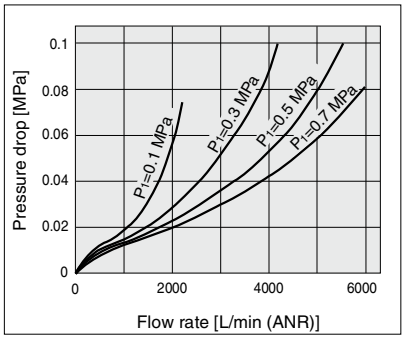
AL10-A M5



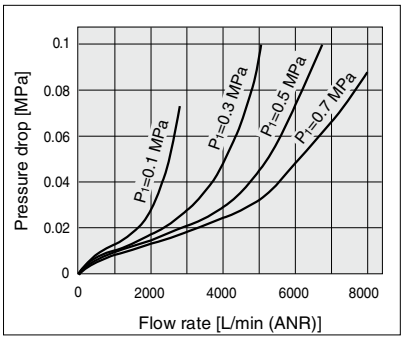
AL20-A Rc1/4



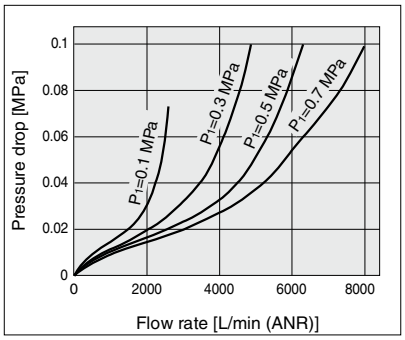
AL30-A Rc3/8



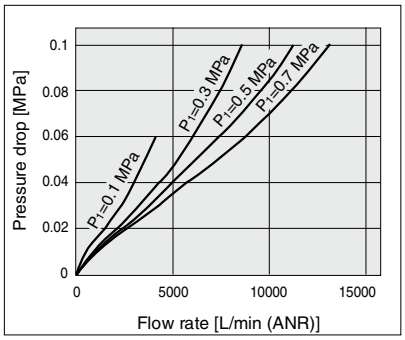
AL40-A Rc1/2



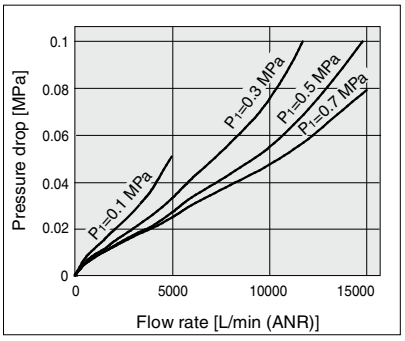
AL40-06-A Rc3/4



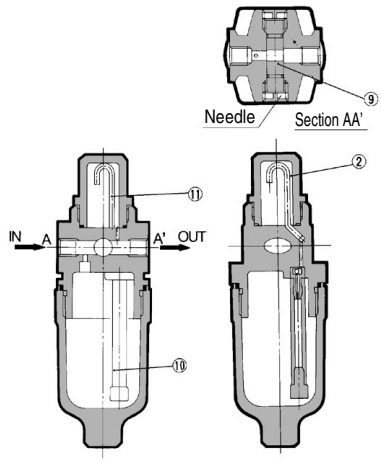
AL50-A Rc1



AL60-A Rc1



Working Principle: AL10



A portion of the air introduced from the IN side pressurizes the lubricant inside the bowl. The remainder of the air passes through the needle ⑨, and flows to the OUT side. The differential pressure between the inside of the bowl and the inside of the sight dome ②, causes the lubricant inside the bowl into the oil passage ⑩. The lubricant drips from the dripping tube ⑪, and lubricates the OUT side. The amount of lubricant is adjusted by the needle ⑨ on the front face. Turning the needle clockwise increases the amount of the lubricant, and turning it counterclockwise until fully open shuts off the lubricant. The needle on the side that is not used should be left fully open.

⚠ Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual", http://www.smcworld.com

Selection

⚠Warning

1. Do not introduce air from the outlet side as this can damage the bumper.
2. **The standard bowl for the air filter, filter regulator, and lubricator, as well as the sight dome for the lubricator are made of polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.**

Effects of atmosphere of organic solvents and chemicals, and where these elements are likely to adhere to the equipment.
Chemical data for substances causing degradation (Reference)

Type	Chemical name	Application examples	Material	
			Polycarbonate	Nylon
Acid	Hydrochloric acid Sulfuric acid, Phosphoric acid Chromic acid	Acid washing liquid for metals	△	×
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Carbonate of soda	Degreasing of metals Industrial salts Water-soluble cutting oil	×	○
Inorganic salts	Sodium sulfide Potassium nitrate Sulfate of soda	—	×	△
Chlorine solvents	Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride	Cleansing liquid for metals Printing ink Dilution	×	△
Aromatic series	Benzene Toluene Paint thinner	Coatings Dry cleaning	×	△
Ketone	Acetone Methyl ethyl ketone Cyclohexane	Photographic film Dry cleaning Textile industries	×	×
Alcohol	Ethyl alcohol IPA Methyl alcohol	Antifreeze Adhesives	△	×
Oil	Gasoline Kerosene	—	×	○
Ester	Phthalic acid dimethyl Phthalic acid diethyl Acetic acid	Synthetic oil Anti-rust additives	×	○
Ether	Methyl ether Ethyl ether	Brake oil additives	×	○
Amino	Methyl amino	Cutting oil Brake oil additives Rubber accelerator	×	×
Others	Thread-lock fluid Seawater Leak tester	—	×	△

○: Essentially safe △: Some effects may occur. ×: Effects will occur.

When the above factors are present, or there is some doubt, use a metal bowl for safety.

Selection

⚠Caution

1. Use a check valve (AKM series) to prevent back flow of the lubricant when redirecting the air flow before the lubricator.

Maintenance

⚠Warning

1. For the AL10-A/AL20-A, replenish the lubricant after releasing the inlet pressure. Lubrication cannot take place under a pressurized condition.
2. Adjustment of the oil regulating valve for models from the AL20-A to AL60-A should be carried out manually. Turning it counterclockwise increases the dripping amount, and turning it clockwise reduces the dripping amount. The use of tools etc. can result in damage to the unit. From the fully closed position, three rotations will bring it to the fully open position. Do not rotate it any further than this. Note that the numbered scale markings are guidelines for adjusting the position, and not indicators of the dripping amount.

⚠Caution

1. Check the dripping amount once a day. Drip failure can cause damage to the components that need lubrication.

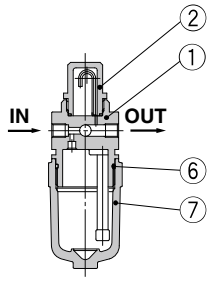
Mounting/Adjustment

⚠Caution

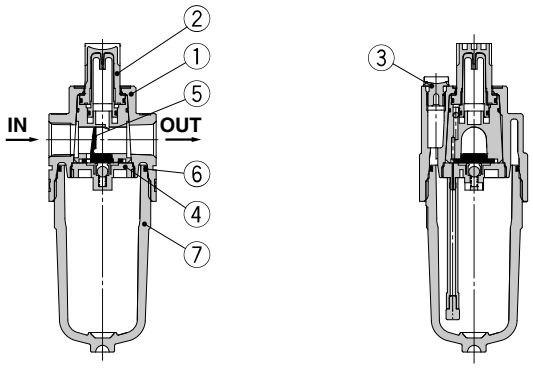
1. When the bowl is installed on the AL30-A to AL60-A, install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.

Construction

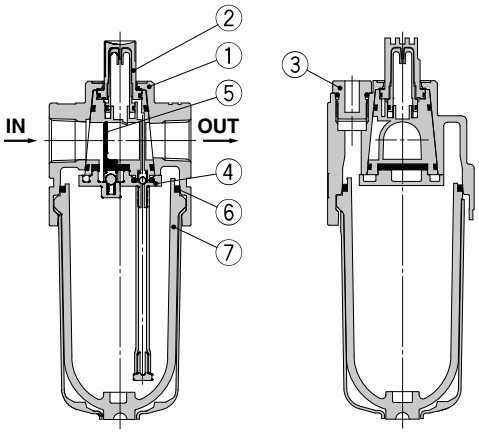
AL10-A



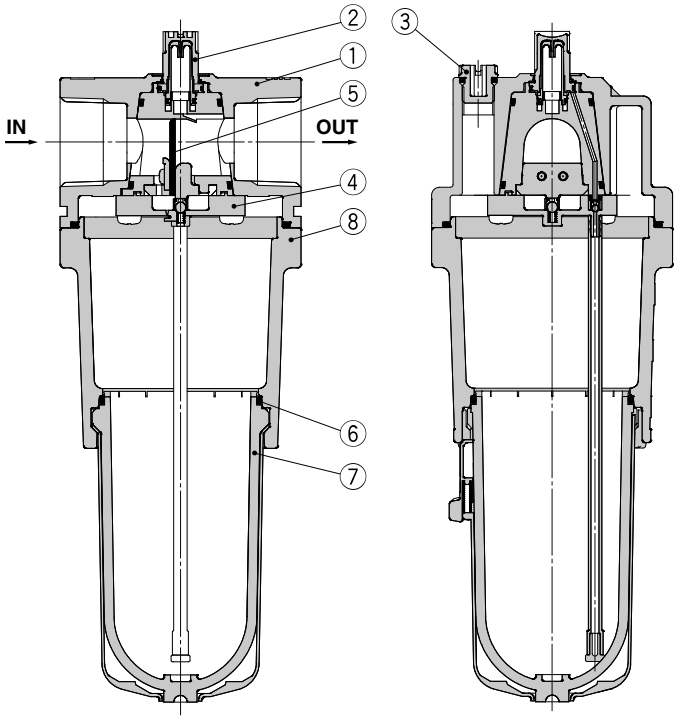
AL20-A



AL30-A/AL40-A



AL50-A/AL60-A



Component Parts

No.	Description	Material	Model	Color
1	**Body**	Zinc die-cast	AL10-A	White
		Aluminum die-cast	AL20-A to AL60-A	
8	**Housing**	Aluminum die-cast	AL50-A/AL60-A	White

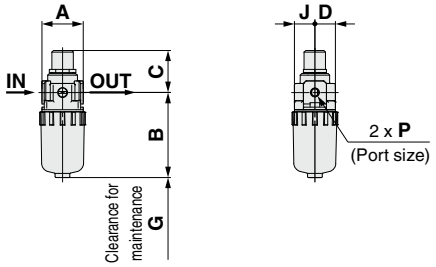
Replacement Parts

No.	Description	Material	Part no.						
			AL10-A	**AL20-A**	**AL30-A**	**AL40-A**	**AL40-06-A**	**AL50-A**	**AL60-A**
2	**Sight dome assembly**	Polycarbonate	AL10P-080AS	AL20P-080AS					
3	**Lubrication plug assembly**	—	—	AL22P-060AS	AL32P-060AS	AL42P-060AS			
4	**Bumper retainer assembly**	—	—	AL20P-030AS	AL30P-030AS	AL40P-030AS		AL50P-030AS	AL60P-030AS
5	**Bumper (assembly)**	Synthetic resin	—	AL20P-040S	AL30P-040S	AL40P-040S		AL50P-040AS	AL60P-040AS
6	**Bowl seal**	NBR	C1SFP-260S	C2SFP-260S	C32FP-260S	C42FP-260S			
7	**Bowl assembly** *1	Polycarbonate	C1SL-A	C2SL-A	C3SL-A	C4SL-A			

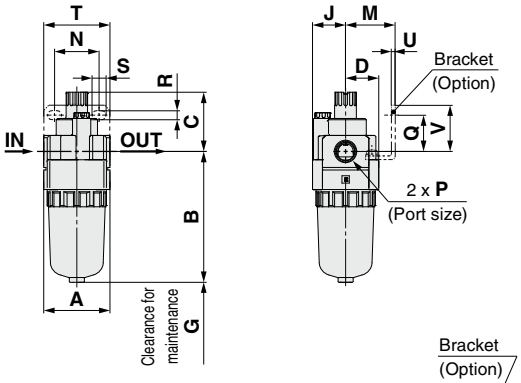
*1 · Bowl seal is included for the AL20-A to AL60-A. Please consult with SMC separately for psi and °F unit display specifications.
· Bowl assembly for the AL30-A to AL60-A models comes with a bowl guard (Material: Polycarbonate).

Dimensions

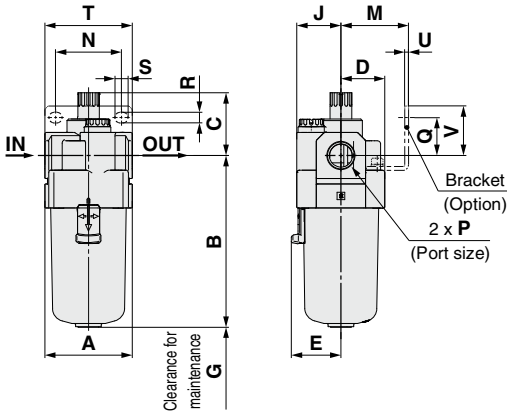
AL10-A



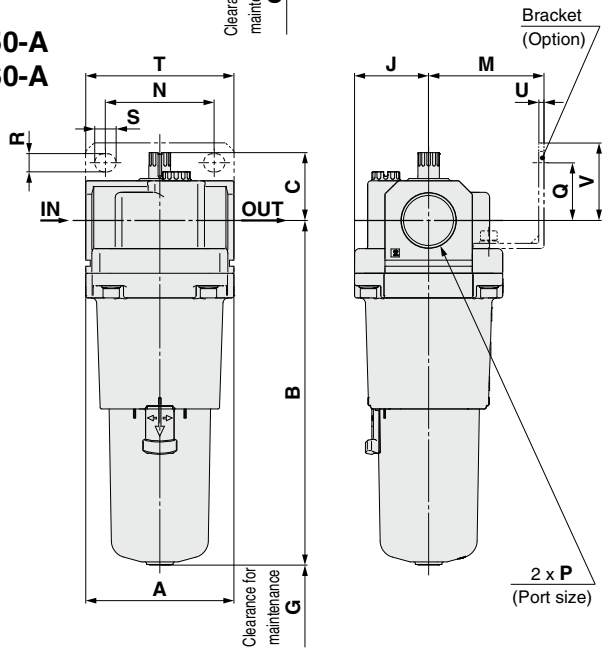
AL20-A

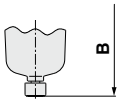
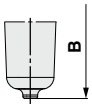
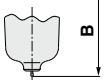
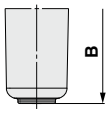


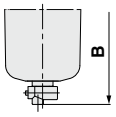
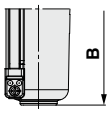
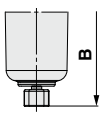
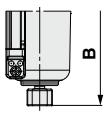
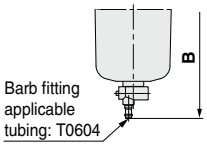
AL30-A to AL40-06-A



AL50-A
AL60-A



Applicable model	AL10-A/AL20-A			AL30-A to AL60-A
Optional/Semi-standard specifications	With drain cock	Metal bowl	Metal bowl with drain cock	Metal bowl
Dimensions				

Applicable model	AL30-A to AL60-A				
Optional/Semi-standard specifications	With drain cock	Metal bowl with level gauge	Metal bowl with drain cock	Metal bowl with level gauge, with drain cock	Drain cock with barb fitting
Dimensions					

Model	Standard specifications								Optional specifications								Semi-standard specifications					
									Bracket mount								With drain cock	With barb fitting	Metal bowl	Metal bowl with drain cock	Metal bowl with level gauge	Metal bowl with level gauge, with drain cock
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U	V	B	B	B	B	B	B
AL10-A	M5 x 0.8	25	51.5	25.5	12.5	—	35	12.5	—	—	—	—	—	—	—	—	59.9	—	56.3	59.3	—	—
AL20-A	1/8, 1/4	40	79.3	35.9	20	—	60	20	30	27	22	5.4	8.4	40	2.3	28	87.7	—	84.5	87.5	—	—
AL30-A	1/4, 3/8	53	104.1	38.1	26.7	30	80	26.7	41	35	23	6.5	13	53	2.3	30	115.1	123.6	104.1	117.6	124.1	137.6
AL40-A	1/4, 3/8, 1/2	70	136.1	39.8	35.5	38.4	110	35.5	50	52	26	8.5	12.5	70	2.3	35	147.1	155.6	136.1	149.6	156.1	169.6
AL40-06-A	3/4	75	138.1	37.8	35.5	38.4	110	35.5	50	52	25	8.5	12.5	70	2.3	34	149.1	157.6	138.1	151.6	158.1	171.6
AL50-A	3/4, 1	90	209.1	41.2	45	—	110	45	70	66	35	11	13	90	3.2	47	220.1	228.6	209.1	222.6	229.1	246.2
AL60-A	1	95	223.1	44.7	47.5	—	110	47.5	70	66	35	11	13	90	3.2	47	234.1	242.6	223.1	236.6	243.1	256.6