

Bell housing

Operating / Installation manual

BMA0003

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The bell housing connects the electric motor and the hydraulic pump. Bell housings are produced in aluminium, cast iron, and steel.

1.0 General information:

Carefully read through this installation manual before installing the bell housing. Pay particular attention to the safety instructions!

The installation manual is part of your product. Store it carefully and in the vicinity of the bell housing.

The copyright for this installation manual shall remain with **Raja-Lovejoy GmbH**.

1.1 Safety and information symbols:



Danger Risk of injury to personnel



Caution Damage could occur to the machine



Note Note regarding important information

1.2 General hazard warnings:



During installation and removal of the bell housing, make sure that the entire drive train is secured to prevent accidental activation, and that the system is depressurised. Rotating parts can cause serious injury. For this reason, the following safety instructions should be read and followed without exception.

- All work on the bell housing should be performed from the perspective of

->“Safety First”

- Secure the drive unit to prevent unintentional activation, e.g. by attaching information signs to the switch-on points or removing the fuse at the power supply.
- Do not reach into the working area of the machine while it is still in operation.
- Protect the rotating parts to prevent accidental touching. Attach the relevant protective devices and covers.

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2.0 Intended use:

You may only install and maintain the bell housing if you:

- have carefully read and understood the installation manual
- are authorised and trained to do so

The bell housing may only be used in accordance with the technical specifications. Unauthorised structural changes to the bell housing are prohibited. We will not accept any liability for damage occurring as a result of this. In the interest further development, we reserve the right to make technical changes. The bell housings described here correspond with the latest technical standards at the time of publication of this installation manual. The bell housing is usually delivered ready for installation.

3.0 Dimensions:

Figure 1: Diagram of fixed version & integrated damped version

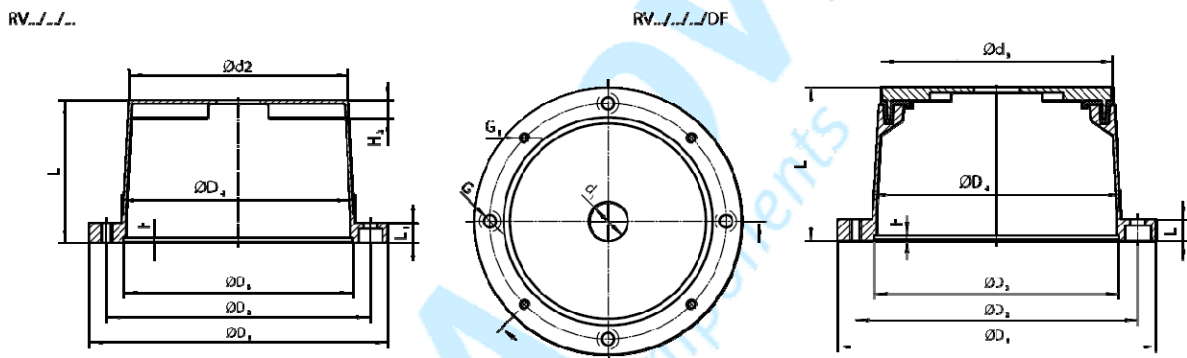


Figure 2: Diagram of fixed version & multi-part damped version

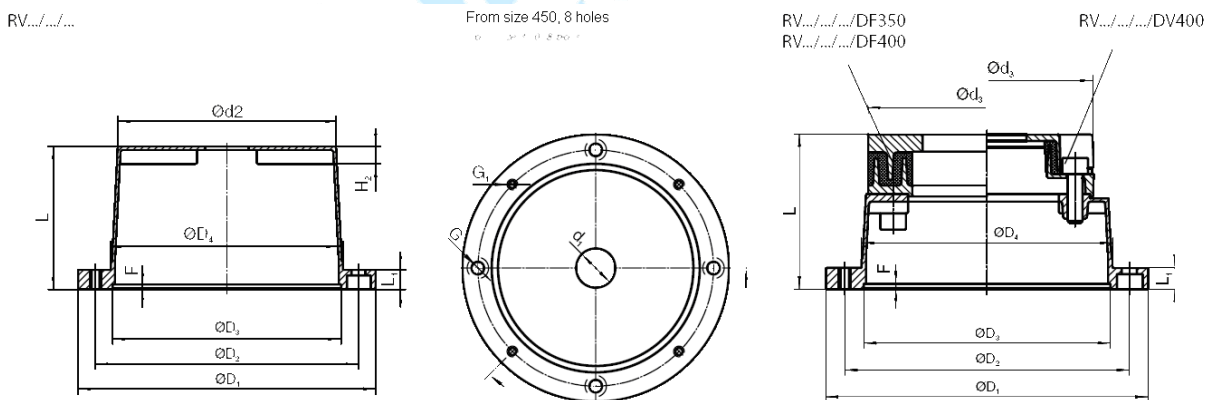


Table 1: Motor flange dimensions $\varnothing 160 - \varnothing 200$ - part 1

Type of bellhousing	Electric motor size	Output [kW]	Shaftend D x l [mm]	Bottom flange	D1	D2	D3	D4	d1	d2	d3	L	L1	F	G	G1	H2
RV 160/80/...	71	0.25	14 x 30	PTFL160	160	130	110	110	21	107	-	80	13	4	9	M8	8.5
RV 160/90/...		0.37										90					
RV 200/100/...	80	0.55-0.75	19 x 40	PTFL200	200	165	130	145	36	129	-	100	16	5	11	M10	12.5
RV 200/110/...	90 S+L	1.1-1.5	24 x 50									110					
RV 200/118/...												118					
RV 200/124/...												124					
RV 200/140/...												140					
RV 250/120/...	100 L	2.2-3	28 x 60	PTFL250	250	215	180	190	45	178	172	120	19	5	14	M12	14.5
RV 250/124/...	112 M	4		PTFS250								124					
RV 250/128/...												128					
RV 250/135/...												135					
RV 250/148/...												148					
RV 250/175/...												175					
RV 300/144/...	132 S	5.5	38 x 80	PTFL300	300	265	230	234	50	222	217	144	20	5	14	M12	18
RV 300/150/...	132 M	7.5		PTFS300								150					
RV 300/155/...												155					
RV 300/168/...												168					
RV 300/196/...												196					
RV 350/188/...	160 M+L	11-15	42 x 110	PTFS350	350	300	250	260	41	236	231	188	26	6	18	M16	18
RV 350/204/...	180 M+L	18.5-22	48 x 110						53	234		204					
RV 350/228/...									70	232	228	228					
RV 350/256/...									90	230	226	256					

Table 2: Motor flange dimensions $\varnothing 400 - \varnothing 800$ - part 2

Type of bellhousing	Electric motor size	Output [kW]	Shaftend D x l [mm]	Bottom flange	D1	D2	D3	D4	d1 min	d1 min	d2	d3	L	L1	F	G	G1	H2
RV 400/204/...	200 L	30	55 x 110	PTFS400	400	350	300	300	50	50	265	260	204	26	6	18	M16	22
RV 400/228/...										(DF350)	262	(DF350)	228					
RV 400/256/...										50	259	283	256					
RV 450/234/...	225 S	37	60 x 140	PTFS450	450	400	350	350	80	(DV400)	301	(DV400)	234	26	6	18	M16	20
RV 450/262/...	225 M	45								80	297	362	262					
RV 450/285/...										(DF400)	276	(DF400)	285					
RV 450/315/...													315					
RV 550/248/...	250 M	55	65 x 140	PTS5500	550	500	450	450	80		362		248	26	6	18	M16	20
RV 550/265/...	280 S+M	75 - 90	75 x 140								359		265					
RV 550/275/...											276		275					
RV 550/295/...													295					
RV 550/315/...													315					
RV 660/310/...	315 S+M+L	110 - 132	80 x 170	PTS660	660	600	550	550	80		414		310	32	6	23	M20	20
RV 660/330/...		160 - 200									276		330					
RV 660/345/...													345					
RV 800/315/...**	355 L	250 - 315	95 x 170	—	800	740	680	680	125		468		315	60	10	23	M20	35
RV 800/335/...**	400 L	355 - 400	100 x 210								474		335					
RV 800/350/...**											485		350					
RV 800/443/...**											490		443					

Figure 3: Diagrams of bell housing for gear pumps

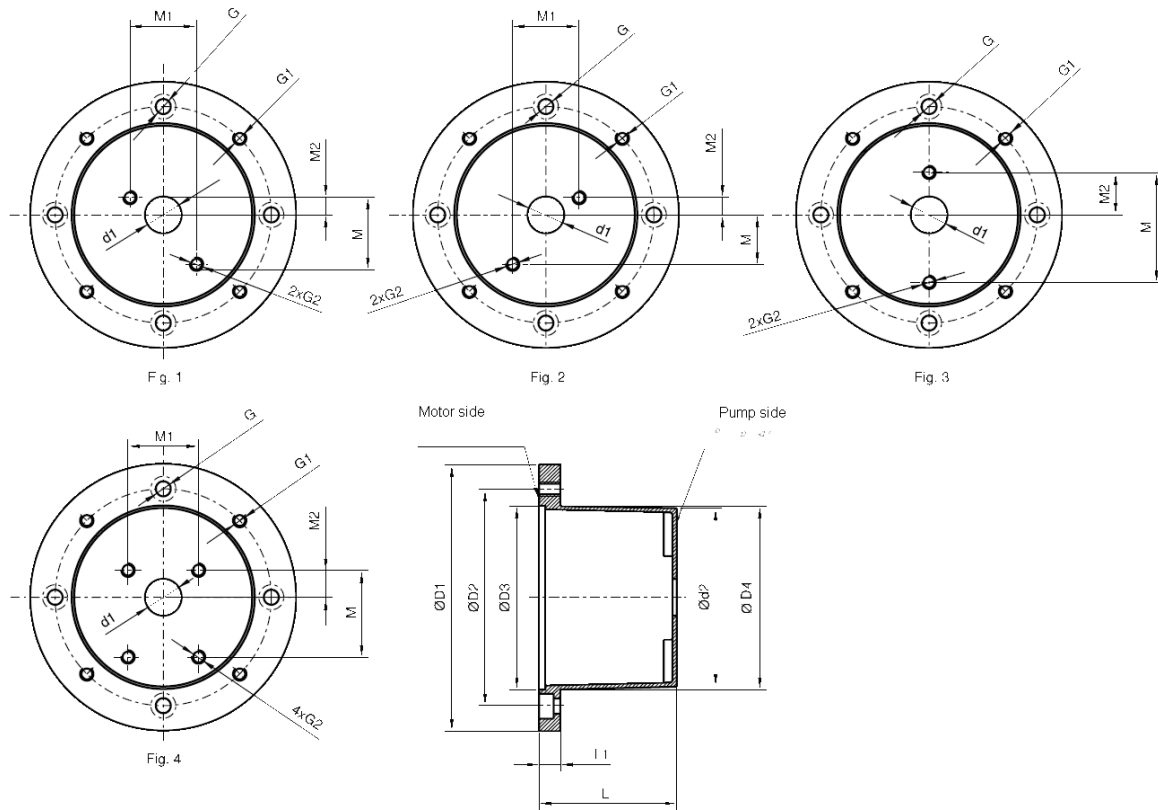


Table 3: Motor flange dimensions $\varnothing 160\text{mm}$

Motorflange – $\varnothing 160\text{ mm}$

Dimensions [mm]

Type	Hole pattern	D1	D2	D3	D4	d1	d2	L	L1	F	G	G1	G2	M	M1	M2
RV160/70/401	Fig. 1	160	130	110	110	32	107	70	13	4	9	M8	2 x M8	40	40	10.35
RV160/70/468	Fig. 3					22							2 x M6	66	25.5	33
RV160/80/401	Fig. 1					32	107	80					2 x M8	40	40	10.35
RV160/80/401/B14						32						M9				
RV160/80/448/ZFV*	Fig. 4					25.4	-					M8	4 x M6	72	52.4	26.2
RV160/80/448/B14/ZFV*						25.4						M9				
RV160/80/453/B14/ZFV*						30								73	56	24.5
RV160/90/401	Fig. 1					32	107	90				M8	2 x M8	40	40	10.35
RV160/90/401/B14						32						M9				
RV160/90/448/ZFV*	Fig. 4					25.4	-					M8	4 x M6	72	52.4	26.2
RV160/90/448/B14/ZFV*						25.4						M9				24.5
RV160/90/453/B14/ZFV*						30								73	56	24.5
RV160/95/441/B14/ZFV*						80	-	95					4 x M8	100	72	34.5
RV160/95/446/B14/ZFV*						36.5								96.2	71.5	32.7
						80	-	105						100	72	34.5
RV160/105/446/B14/ZFV*						36.5								96.2	71.5	32.7
						25.4								72	52.4	26.2
RV160/110/441/B14/ZFV*						80								100	72	34.5
RV160/110/446/B14/ZFV*						36.5								96.2	71.5	2.7

Table 4: Motor flange dimensions $\varnothing 200\text{mm}$

Motorflange – $\varnothing 200\text{ mm}$

Dimensions [mm]

Type	Hole pattern	D1	D2	D3	D4	d1	d2	L	L1	F	G	G1	G2	M	M1	M2
RV200/80/401	Fig. 1	200	165	130	145	32	129	80	16	5	11	M10	2 x M8	40	40	10.35
RV200/80/448	Fig. 4					25.4							4 x M6	72	52.4	26.2
RV200/80/453						30								73	56	24.5
RV200/80/468	Fig. 3					22							2 x M6	66	25.5	33
RV200/80/493	Fig. 4					33							4 x M6	72	52.4	26.2
RV200/90/401	Fig. 1					32		90					2 x M8	40	40	10.35
RV200/90/448	Fig. 4					25.4							4 x M6	72	52.4	26.2
RV200/90/453						30								73	56	24.5
RV200/90/468	Fig. 3					22							2 x M6	66	25.5	33
RV200/90/493	Fig. 4					33							4 x M6	72	52.4	26.2
RV200/96/439/ZFV*						50	-	96					2 x M10	60	60	14.5
RV200/96/441/ZFV*						80							4 x M8	100	72	34.5
RV200/96/446/ZFV*						36.5								96.2	71.5	32.7
RV200/96/459/ZFV*						36.5							4 x M6			
RV200/100/404						52	129	100					2 x M8	62	62	23.3
RV200/100/405						63										
RV200/100/474						32								52	52	19.5
RV200/100/476						45.24										
RV200/106/439/ZFV*						50	-	106					2 x M10	60	60	14.5
RV200/106/441/ZFV*						80							4 x M8	100	72	34.5
RV200/106/446/ZFV*						36.5								96.2	71.5	32.7
RV200/106/459/ZFV*						36.5							4 x M6			
RV200/110/404						52	129	110					2 x M8	62	62	23.3
RV200/110/405						63										

*Don't use for leakage free assembly

Table 5: Motor flange dimensions $\varnothing 250\text{mm}$

Motorflange – $\varnothing 250\text{ mm}$

Dimensions [mm]

Type	Hole pattern	D1	D2	D3	D4	d1	d2	L	L1	F	G	G1	G2	M	M1	M2
RV250/110/401	Fig. 1	250	215	180	190	32	179	110	19	5	14	M12	2 x M8	40	40	10.35
RV250/110/402						50								72	72	28.6
RV250/110/439													2 x M10	60	60	14.5
RV250/110/441	Fig. 4					80							4 x M8	100	72	34.5
RV250/110/446						36.5								96.2	71.5	32.7
RV250/110/448						25.4							4 x M6	72	52.4	26.2
RV250/110/453						30								73	56	24.5
RV250/110/459						36.5								96.2	71.5	32.7
RV250/110/462													4 x M8			
RV250/110/493						33							4 x M6	72	52.4	26.2
RV250/110/828						77							4 x M8	96.2	71.5	32.7
RV250/116/401	Fig. 1					32		116					2 x M8	40	40	10.35
RV250/116/402						50								72	72	28.6
RV250/116/439													2 x M10	60	60	14.5
RV250/116/441	Fig. 4					80							4 x M8	100	72	34.5
RV250/116/446						36.5								96.2	71.5	32.7
RV250/116/448						25.4							4 x M6	72	52.4	26.2
RV250/116/453						30								73	56	24.5
RV250/116/459						36.5								96.2	71.5	32.7
RV250/116/462													4 x M8			
RV250/116/493						33							4 x M6	72	52.4	26.2
RV250/116/828						77							4 x M8	96.2	71.5	32.7
RV250/120/404	Fig. 1					52	178	120					2 x M8	62	62	23.3
RV250/120/405						63										
RV250/124/404						52		124								
RV250/124/405						63										

Table 6: Motor flange dimensions $\varnothing 300\text{mm}$

Motorflange – $\varnothing 300\text{ mm}$

Dimensions [mm]

Type	Hole pattern	D1	D2	D3	D4	d1	d2	L	L1	F	G	G1	G2	M	M1	M2
RV300/130/405	Fig. 1	300	265	230	234	63	223	130	20	5	14	M12	2 x M8	62	62	23.3
RV300/130/439						50							2 x M10	60	60	14.5
RV300/130/441	Fig. 4					80							4 x M8	100	72	34.5
RV300/130/446						36.5								96.2	71.5	32.7
RV300/130/459													4 x M6			
RV300/130/499	Fig. 2					50							2 x M10	60	60	14.5
RV300/144/425	Fig. 4					65		144					4 x M8	110	110	32.5
RV300/144/444						50.8							4 x M10	137	98.4	45
RV300/144/447													4 x M8	128		42.9
RV300/144/465													4 x M10			
RV300/162/403/ZFV*						125	-	162						206	136	103
RV300/162/419/ZFV*						60							4 x M12	154	127	48
RV300/162/423/ZFV*						85							4 x M10	164	124	50
RV300/162/426/ZFV*						80							4 x M12	150	150	43.2
RV300/162/427/ZFV*						63.5								188	143	64.3
RV300/162/442/ZFV*						105							4 x M10	145	102	48
RV300/162/443/ZFV*						60							4 x M12	148	127	
RV300/162/444/ZFV*						50.8							4 x M10	137	98.4	45
RV300/162/449/ZFV*						60.3								149.4	114.3	49.3
RV300/162/451/ZFV*						63.5							4 x M12	196	142.8	65.1
RV300/162/475/ZFV*						160							4 x M16	200	160	70.7

* Don't use for leakage free assembly

Table 7: Motor flange dimensions $\varnothing 350\text{mm}$

Motorflange – $\varnothing 350\text{ mm}$

Dimensions [mm]

Type	Hole pattern	D1	D2	D3	D4	d1	d2	L	L1	F	G	G1	G2	M	M1	M2
RV350/173/404	Fig. 1	350	300	250	260	52	238	173	26	6	18	M16	2 x M8	62	62	23.3
RV350/173/405						63										
RV350/173/417	Fig. 4					80							4 x M10	130	100	41
RV350/173/439	Fig. 1					50							2 x M10	60	60	14.5
RV350/173/441	Fig. 4					80							4 x M8	100	72	34.5
RV350/173/442						105							4 x M10	145	102	48
RV350/173/444						50.8								137	98.4	45
RV350/173/446						36.5							4 x M8	96.2	71.5	32.7
RV350/173/447						50.8								128	98.4	42.9
RV350/173/459						36.5							4 x M6	96.2	71.5	32.7
RV350/173/499	Fig. 2					50							2 x M10	60	60	14.5
RV350/205/403/ZFV*	Fig. 4					125	-	205					4 x M10	206	136	103
RV350/205/419/ZFV*						60							4 x M12	154	127	48
RV350/205/423/ZFV*						85							4 x M10	164	124	50
RV350/205/426/ZFV*						80							4 x M12	150	150	43.2
RV350/205/427/ZFV*						63.5								188	143	64.3
RV350/205/442/ZFV*						105							4 x M10	145	102	48
RV350/205/443/ZFV*						60							4 x M12	148	127	
RV350/205/444/ZFV*						50.8							4 x M10	137	98.4	45
RV350/205/449/ZFV*						60.3								149.4	114.3	49.3

* Don't use for leakage free assembly

Table 8: Motor flange dimensions $\varnothing 400\text{mm}$

Motorflange – $\varnothing 400\text{ mm}$

Dimensions [mm]

Type	Hole pattern	D1	D2	D3	D4	d1	d2	L	L1	F	G	G1	G2	M	M1	M2
RV400/168/441	Fig. 4	400	350	300	300	80	284	168	26	6	18	M16	4 x M8	100	72	34.5
RV400/168/447						50.8								128	98.4	42.9
RV400/168/481						100							4 x M10	132	88.4	44.2
RV400/196/441						80	281	196					4 x M8	100	72	34
RV400/196/442						105							4 x M10	145	102	48
RV400/196/443						60							4 x M12	148	127	
RV400/196/444						50.8							4 x M10	137	98.4	45
RV400/196/447													4 x M8	128		42.9
RV400/196/449						60.3							4 x M10	149.4	114.3	49.3
RV400/196/465						50.8								128	98.4	42.9

4.0 Assembly



The screws should normally be secured with Loctite, Omnifit 230M or a comparable thread adhesive.



To achieve the full loading capacity of the bell housings, **all** fastening holes must be screwed to the electric motor.



If the bell housing in question has leakage or installation holes they should be sealed, according to instructions, to make it impossible to touch the rotating coupling. We offer grilles and plugs for this purpose.

Figure 4: Grille



Figure 5: Plug



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4.1 Fitting the bell housing to the electric motor

- The bell housing is slid onto the centring device of the electric motor and the hydraulic pump, and screwed into place. Only use the existing threaded holes in the bell housing to screw it together with the electric motor.
- Insert the cheese head screws (per DIN 912) into the through-holes of the electric motor flange and screw them into the threaded holes in the bell housing. Preferably, a screw length should be selected which enables the entire thread depth of the threaded holes to be used in the bell housing.
- Please see Table 9 for the screw tightening torques for the electric motor.
- The screw tightening torques for the hydraulic pump can be found in the technical documentation of the hydraulic pump manufacturer.

Figure 4: Exploded diagram: Motor / Bell housing / Pump

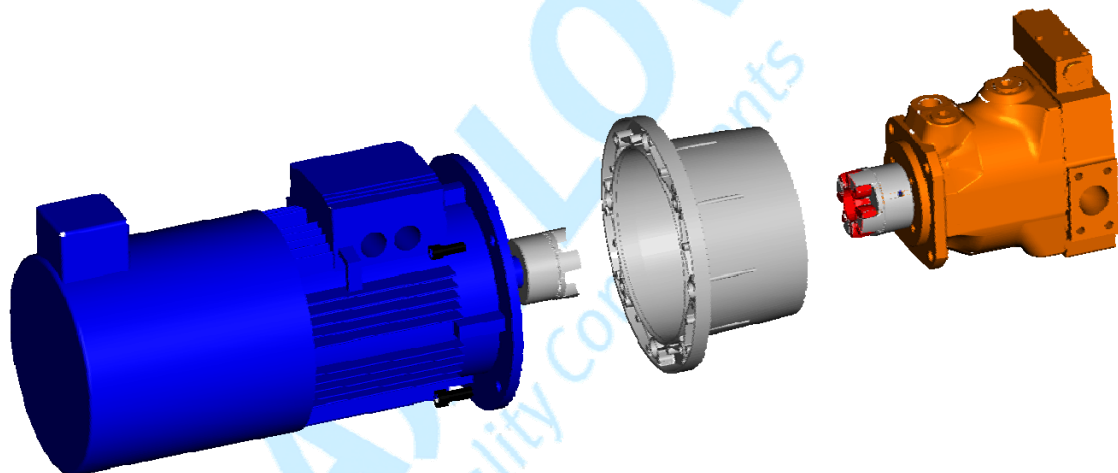


Table 9: Tightening torques

Cheese head screw with hexagonal socket acc. to DIN 912 - 8.8	M8	M10	M12	M16	M20
Tightening torques for aluminium pump bracket T_A [Nm]	12	23	40	100	190
Cheese head screw with hexagonal socket acc. to DIN 912 - 8.8	M8	M10	M12	M16	M20
Tightening torques for cast iron pump bracket T_A [Nm]	25	49	86	210	410
Cheese head screw with hexagonal socket acc. to DIN 912 - 8.8	M8	M10	M12	M16	M20
Tightening torques for steel pump bracket T_A [Nm]	25	53	86	210	410

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5.0 Additional information:

- The bell housings can be used either horizontally or vertically.



The customer is responsible for ensuring that there is a proper seal between the bell housing and the hydraulic pump.
Seals for this purpose can be ordered from us.

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