

# CAPACITY UPGRADE KIT

## for VR38DETT/R35GT-R

HKS has developed upgrade kit for R35 GT-R for some more power! People who are not satisfied with 800+ and want more power on R35, this is the kit you need. We have made it for a longer stroke to gain on the lower RPM for the big turbine. So you can have absolute power even on the normal RPM. This high-end, made in Japan products of piston, conrod and crankshaft are made by billet method.



### Characteristic

#### POINT 1. Piston Kit

- HKS were insistent on forging, we employed billet method from forged bar material.
- We have employed special truss shape with our test and strength analysis for a extreme power.
- The perfect shape of very short height low friction type gives light weight and strength. They are **80g lighter compared to the stock and STEP1/STEP2 piston.**

#### POINT 2. Connecting rod

- Being a longer stroke, we have developed original conrod. For modification work of engine side is needed only at the block oil return.

#### POINT 3. Crankshaft stroke 95.5mm

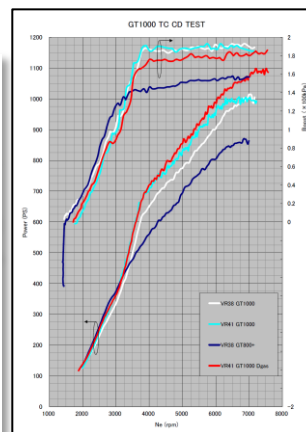
- Billet method form forged bar material.
- HKS special shape that came from our profound racing experience analysis on V6 balance.
- For better friction we have employed special edge for counter weight.
- We have designed counter weight for the perfect shape for a perfect balance!

#### POINT 4. Normal bore compatible 95.5mm

- Not to decrease the strength of the block which relate directly to the engine's performance, HKS has employed **stock bore size that does not need liner process.**
- Also we could cut the cost by not having liner work and block shaving of upper surface.

#### POINT 5. Only HKS can provide the high quality total setup package kit.

- This kit is for upgrade from 800+. Surge tank, injector kit, intercooler and etc. are offered separately for a total tuning solution.
- HKS have tested our products over and over in the bench or circuit for the best performance and safety.

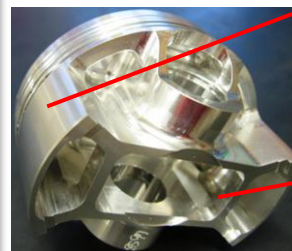


#### [Advantage of more displacement]

GT 1000 full turbine kit installed car have more than 1000ps, but 3.8L engine(white) is like peakey, however 4.1L(light blue) will have advantage and higher quality output from 2500 RPM to the top end.

#### [The short height of the piston skirt part]

Reduce the friction by becoming a short height the skirt portion, and the new profile.



#### [Truss structure of the inner piston]

We have accomplished very high quality in both rigidity and lightweight by "truss" structure inside piston.

### Specification

	HKS 4.1L KIT	STOCK
Bore	95.5mm	95.5mm
Stroke	95.5mm	88.4mm
Compression ratio (t=0.8)	8.7	9.0
Tolerate RPM	7800rpm	7000rpm
Displacement	4104ml	3799ml

### VR38DETT 4.1L KIT

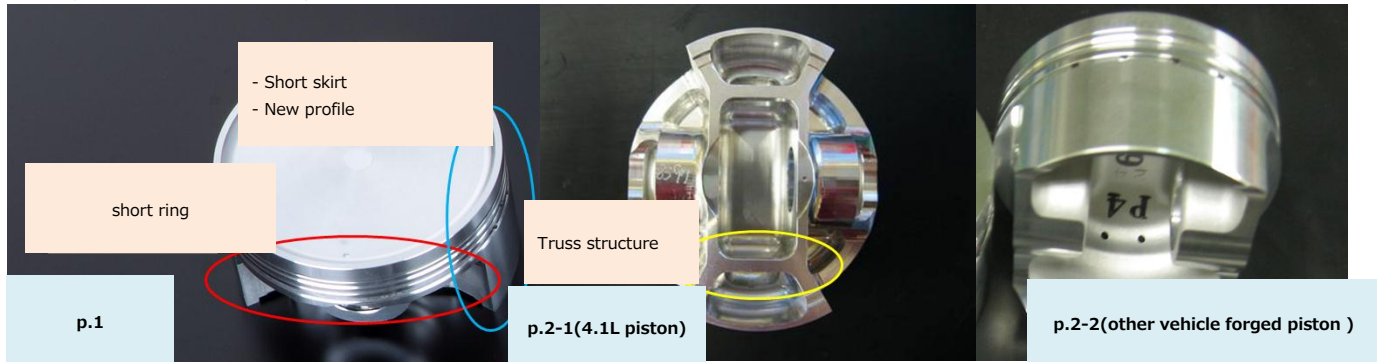
Procduct	Engine type	Displacement	Type	Boring/honing	Full flow	Code No.	Price	Remark
VR38DETT 4.1L kit	VR38DETT	4104	φ95.5-φ23	not required	not required	21004-AN018		needs work for escape for block
Billet piston kit	VR38DETT	4104	φ95.5-φ23	not required	not required	21003-AN010		-
Billet crankshaft	VR38DETT	-	-	-	-	23006-AN006		stroke 95.5mm, billet
H-beam conrod Step2	VR38DETT	-	φ23 pin	-	not required	23004-AN005		STEP2*

\* For only the products that are released after July2012. Please contact HKS for more info.

## ● Billet Piston

### Features and Remarks

- Tolerate power is 1000ps and tolerate RPM is 7800rpm.
- Make piston, ring/skirt part short and by employing new profile reduced friction.(p.1)
- Making truss structure inside the piston provide high rigidity and at the same time trim weight(p.2). 100g lighter than the stock piston and even 80g lighter than the HKS STEP1/STEP2 piston.
- Piston ring is compatible with stock ring.
- (Important: Please perform breaking in driving after installation)**
- Have more room for setting by compression ratio of less than -0.3 compared to stock( $\epsilon=9.0 \Rightarrow 8.7$ )
- This piston is for 4.1L kit only. Can not use with stock crankshaft.

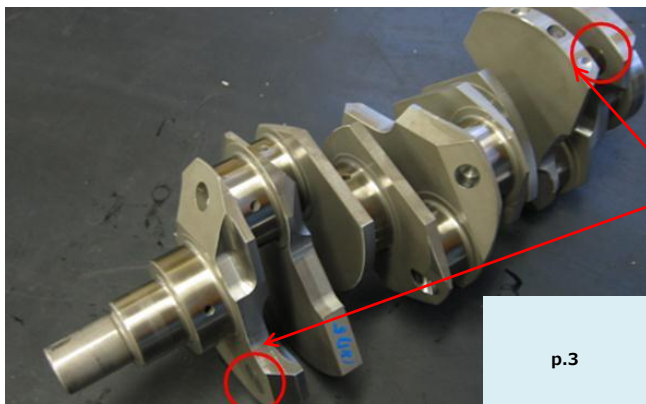


## ● Billet Crankshaft

- Billet production from a forged pole material that has strength, rigidity and balance to endure the 1000ps power.
- This crankshaft is for stoke 95.5mm 4.1L kit. Use it with special piston kit and STEP2 connecting rod.
- Tolerance power of 4.1L kit is 1000ps and 7800RPM.
- Main pin journal diameter is same as standard size.
- The weight of the crankshaft itself is 18.7kg which is 1.2kg lighter than the stock crankshaft.
- To reduce the vibration of V6 engine, Amviroy®\* is used for counter weight which eliminate the couple of forces. (p.3)
- Do not need to balance separately.
- Need to modify part of cylinder block oil return.

\* Amviloy® is made of tungsten with adding some other materials such as molybdenum, copper, nickel, iron and etc. It's made by Mitsubishi i Material CMI Inc..

\*\* Powder metallurgy method: After the pressure molding the metal powder, it's made of heat sintering at below the fusing poi nt. The process is operated in the hydrogen or vacuum in order to prevent oxidation.



By using the heavy alloy Amviroy® for counter weight, it can restrain the vibration without increasing the volume of counter weight itself.