

## DOMESTIC LPG SAVINGS AND SAFETY IS THE NEED OF THE HOUR NOW.

LPG saving and safety can be achieved by the domestic consumers if the Govt approves and implements the proposed retrofit device in to cylinder. The Govt can save Rs.5000 Crores annually by lowering the subsidized cylinder quota from 12 to 9. For which, the Govt needs to approve LPG Gas Fuse device TODAY at a proposed subsidized price of Rs.500/- only per cylinder. This device is nothing but a Two stage LPG gas pressure regulator with added safety Trip Function against LPG leakage & as well a meter to show LPG in cylinder. Already LPG savings of around 10 to 20 % achieved by lakhs of domestic consumers using this LPG domestic cylinder Gas safety device.

The Gas safety device is sold by those vendors for Rs.2000 to 3000/- directly and by MLM means. The gas fuse brands report show around 10 to 20 % savings as told by their domestic user reviews. The Gas fuse vendors had sold LAKHS of units all these years and the LPG savings confirmed by the users. The vendors promoted this device for gas safety only and not for savings and hiked the product cost. The Gas safety device is now manufactured in low volumes, hence high cost and not approved by oil companies till date. The device I purchased thro 'Snapdeal' over net costed me Rs.700/- only in 2014. when the device MRP is Rs.3000/- and if the same is mass produced after Govt approves & subsidizes the same, its price can come down to Rs.500/- and For the domestic consumer, the conservative LPG saving of Rs.50 per month cylinder usage, (10 % LPG savings) on Rs.500/- in 10 months payback. Product Image:-



**GAS RETROFIT DEVICE**



**DEVICE FITTED ON CYLINDER TOP BEFORE EXISTING REGULATOR**

Instead of selling LPG stove & other accessories mandatorily to each consumer, the Govt can approve this device and allow the consumers to save LPG and reduce their subsidy quota from 12 to 9 to 6 cylinders per year. The oil companies are aware of this product but as on date, no one has taken the initiative to popularize this product for LPG savings. The Govt can also mandate to LPG stove OEM to give spare set of Burner heads. So that using this Active Spare Burner Head and swap this burner head after every weekly or monthly use, will yield more LPG savings.

### BRIEF INTRO ABOUT LPG SAVINGS & SAFETY PROPOSAL:-


The proposed idea is that the domestic LPG cylinder can be added with a Pre-Regulator or alternatively can be replaced with cascaded type two stage pressure gas pressure regulator; the flow will be streamlined irrespective of input pressure variations arising out of full level to empty level of LPG in the cylinder.

This a grey area about Domestic LPG cylinder output pressure now discussed here. i.e. targeting to pinpoint pressure regulation to achieve steady combustion always? This is achieved by this retrofit device along with extra safety features along with LPG gas indication meter. The same function can be achieved by the proposed two stage regulator which can be made by the existing LPG domestic pressure regulator OEMs. This device is already bulk produced by OEMs.

The proposed regulator will act in two stages; the first one as retrofit device will sit on cylinder first and will act as COARSE pressure regulator; and the existing will sit above the new device to act as FINE Pressure regulator and achieve steady output final pressure & flow for varying LPG liquid level in the cylinder.

### DEFICIENCY IN THE EXISTING LPG REGULATOR:-

1. The 14 KG weight of LPG liquid at pressure of say, 5 bars is first reduced by the existing regulator to 0.03 bar or 30 milli bar LPG gas with variation of output from 40 to 23 milli bar for the full level to empty level of LPG in the cylinder and this pressure reduction achieves the Liquid to Gas phase of LPG from the cylinder thro the regulator. Then the low pressure LPG gas is premixed with air before burner to go for combustion.

	0.5 - 17 Kg/cm <sup>2</sup>	30 mbar (300 mm w.c.)	0.5 Nm <sup>3</sup> / hr	Inlet: To suit 22 mm dia S.C. valve  Outlet: Nozzel to suit 1/4" I.D. hose pipe	LPG
-----------------------------------------------------------------------------------	-----------------------------	-----------------------	--------------------------	---------------------------------------------------------------------------------------------	-----

2. Gas Regulator approved OEM Vanaz.com / Pune / The technical specifications of the pressure regulator approved by Oil companies. And this typical LPG regulator costing around Rs.250/- only.

INLET PRESSURE (BAR)			FLOW	OPERATING PRESSURE							
NOMINAL	MAX.	MIN.		NOMINAL		MAXIMUM		MINIMUM		LOCK-UP	
			Inlet pressure with 50% flow		Inlet pressure with 100% flow		Inlet pressure with 100% flow		Inlet pressure with 200% flow		
			Mbar	IN/WG	Mbar	IN/WG	Mbar	IN/WG	Mbar	IN/WG	
BUTANE	6	0.2	28	11.2	33	13.2	25	10	38	15.2	
PROPANE	20	1	37	14.8	42	16.8	32	12.8	52	20.8	
LPG	17	0.5	30	12	40	16	23	9.2	45	18	

3. Technical specifications from another Gas Regulator Approved OEM <http://www.agcpl.com/lpg-regulators.html> / Delhi The details are taken from the net and from the Indian manufacturers of LPG regulators.
4. The Oil companies recommend that the most optimum LPG pressure for efficient combustion, say 28 milli bar (280 mm WC / 11 inches Water column) for sustained steady combustion of 14 Kg LPG. We understand that the pressure band around 28 milli bar if narrowed down instead of existing wide band between 40 to 23 milli Bar, we will get a steady pressure & flow of gas output to be premixed with air before the stove burner.

### PROPOSED TWO STAGE CASCADED PRESSURE REGULATOR:-

5. The present LPG pressure regulator's Turn down ratio or the Pressure Reduction Ratio is say in the order of 200: 1 ratio. Here the ratio is huge that the output regulation band is widened now. Now if we provide a two stage

regulator; that is the coarse regulator in first stage to bring down the pressure to 1200 to 2000 milli Bar as 4 :1 as ratio of Primary compression. Then the secondary compression in the ratio of 50:1 will give finer pressure regulation downstream.

6. And by fine regulation in the second regulator from above to the secondary pressure of say 28 milli bar, this will make the flow & pressure steady for any level of the LPG in the cylinder. We find in stage wise regulation process that this ratio is optimum to achieve better regulation. This cascaded turn down ratio will optimally give better and precise, pinpoint pressure regulation of LPG outlet pressure.
7. The added feature of the device is that it will automatically shut gas at cylinder itself, if LPG leaks at the downstream of device say from LPG hose to the stove burner. This is a fool proof, excellent and must add-on feature to our kitchen. When LPG leaks accidentally, or stove left unattended, or gas leaking when kitchen is unmanned, this device senses even minute gas leak and trips the LPG regulator and hence ensures no LPG leaks outside as it has sensed the LPG gas leak detected at downstream of the regulator to stove.
8. This LPG device trip safety function is a MUST to all the existing domestic LPG consumers in kitchens at thatched roof, concrete houses and in high rise multi storey flats. Safety ensured in each flat is a MUST so that whole flat building can be saved even if LPG leaks in kitchen in any one of hundreds of flats in the bulk dwelling units.

#### **VENDORS PROMOTED GAS SAFETY DEVICE FROM SAFETY POINT OF VIEW ONLY:-**

- **The Gas SAFETY DEVICE Specs given by one of the GAS FUSE vendors: -**
  - **Inlet LPG pressure from the cylinder : 0.7 to 15.6 Bar (normally around 5 Bar)**
  - **Outlet LPG Pressure to the burner : 120-200 Kpa / 1.2 Bar to 2 Bar.**
  - **Output LPG Flow: 0.6-1.2 m<sup>3</sup>/hr**
  -
9. The Gas safety device vendors at present in India are either branded / Foreign collaborated/ small scale industry / Assembly vendor / MLM vendor etc It is a pity that many MLM traders are selling this gas safety cum saving device thro hiked margins because it is voluntary only. In 2014, the snap deal purchased by me over net was Rs.700, that is the minimum price available to consumer. I think, without Govt initiatives, the energy saving devices will be sold like this way only with 5 times hiked margins. What I got now from Snapdeal is the "Gas Safe" product name in March 2014 and labeled from the company called Gas Safe India Marketing, [www:gassafe.net.in](http://www.gassafe.net.in) vide the image given.
  10. Invariably all the vendors are selling the product as only as Gas Safety Device giving priority to safety in the Automatic shut-off mechanism of gas in case of high flow & low pressure at the outlet. Either the vendors are giving the least priority to the savings or not highlighting the savings. But, the entire local to branded vendors show LPG savings of 10 to 20 % on retrofitting their product on cylinder over the few years.

#### **RETURN ON INVESTMENT & SIMPLE PAYBACK ON THIS RETROFIT:-**

The conventional cylinder regulator costs only Rs.250/-. For the subsidized gas of Rs.500 for 14 Kg cylinder, this conservative of 10 % savings works out to Rs.50 and the cost of the regulator can be paid back simply in 10 months say for the proposed new two stage regulator @ mass scale price of Rs.500/- And for commercial cylinder usage in the stove application, the payback will be just 4 month. Leave alone the payback; the consumer is motivated to achieve this LPG savings and ensured of the safety in LPG in kitchen against leakage. Presently, the Gas Fuse device vendors sell their product for the sake of safety only and hence quoting a high price of Rs.2500/-. If we work out the

LPG savings at their price, the simple payback will be 50 months and it is not worth paying such high price now. Let us all pull down the price to motivate the domestic consumer to go for this New regulator for safety & savings.

## **CONCLUSION:-**

Now the market is flooded with the above LPG safety and Saving devices, the Government to take immediate steps TODAY to enforce safety & savings in the GENUINE product; and give the list of Government APPROVED VENDORS / BRANDS & their subsidized price for this Gas Fuse Device early for the common man's LPG saving benefits without compromising the Safety aspects in kitchen usage.

If this is not done Today, it will give rise to spurious products sold as genuinely duplicated. Instead of added safety, this will lead to more accidents due to their malfunctioning. Also, we hear every week about many fire accidents happening thro out the country due to LPG leaks in kitchen, leading to colossal losses in materials and precious Human lives. This Retrofit exercise instantly implementable by the user, will go a long way to save from LPG leakage and Savings for the Nation too.

**Ashok.S / BEE Accredited Energy Auditor / Coimbatore. Mail to – [ashok@energymeasuretosave.com](mailto:ashok@energymeasuretosave.com)**

### **Existing Govt approved LPG domestic regulator vendors: -**

1. [www.vanaz.com](http://www.vanaz.com) / and 2. <http://www.agcpl.com/lpg-regulators.html>

**References :- Branded Gas fuse vendors - 1, [www.gassafe.net.in](http://www.gassafe.net.in) / 2. [www.kingfuse.com](http://www.kingfuse.com)**

### **The new LPG gas Fuse device vendors marketing thro net :-**

1. <http://gassecura.wordpress.com/gas-secura/>
2. <http://gassecura.wordpress.com/price-for-products/>
3. <http://www.snapdeal.com/product/gas-secura-safety-device-for/680435176>
4. <https://www.facebook.com/gassafetydevices>