HANDBOOK

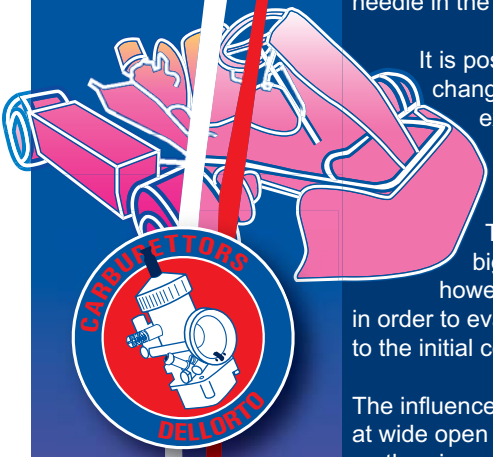
for the carburettor's setting

VHSH 30

DELLORTO

INTRODUCTION
The carburettor and the Kart

The **VHSH 30** carburettor has been developed specifically for kart application thanks to the experience acquired with the main official teams (**VORTEX**, **TM**, **CRS**, **SGM**, **MAXTER**, **PAVESI** etc.) and it has been homologated by CIK-FIA for the second consecutive three years in 125 ICC and SUPER ICC categories; the product can grant the maximum power together with a very good acceleration thanks to the complete management of each engine operation condition at any rpm. The complete components equipment may grant an indipendent management of the different utilization phases: start, idle, progression, stabilized condition, total or partial fast opening, wide open throttle. The table shows the operation condition, the influence on each calibration component, and the picture of the item. In addition you can find the specification with the basic calibration, and the list of the adjusting components, and the table with the dimensions of the conical needle in the different sizes.



It is possibile that, due to the weather and/or geographic changes, or to the different engine features (thermal, exhaust, ignition) we can have carburation problems. It's therefore necessary to act on the different setting in order to establish the correct operation compromise.

The fundamental rule for a correct setting is to avoid big changes compared to the starting setting, and however, it's important to act on each component at a time, in order to evaluate the effective influence and eventually go back to the initial conditions before testing another part.

The influence of the altitude and the temperature is evident mainly at wide open throttle and at idle; it's therefore necessary to act first on the air screw and then on the main jet. It's then useful to remember that higher level we are, more the carburetion ennriches and more the ambient temperature increases, more the air/fuel mixture title enriches.

For any further and more detailed explanations on the carburettor's operation and setting up, please refer to the specific handbook available on the official site **www.dellorto.it**.

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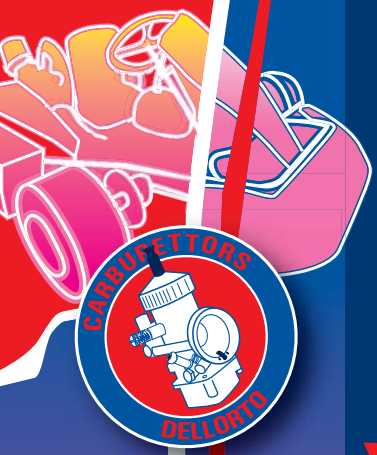
TECHNICAL FORM
Vortex
Kart 125 ROK engine

Adjustment n° 09305

The immovable parts (EI) and the ones in brackets, are not spare parts. For the spare parts list please refer to Dell'orto SpA specific catalogue.



Carburettor body

Choke	30mm cylindrical bore
Engine connection	Ø 35
Air intake	Ø 64

Feeding

Float	4g 15760.03.80
Fuel inlet valve	8649.250.33
Level from the float chamber plane	6mm on

Start

Starting jet	6217.60.02
Starting air	500 EI

Idle

Idle screw opened (turns)	2
Idle hole	70 EI
Idle jet	B 13086.45.02 emulsioned
Idle jet	12995.60.02

Progression

Progression hole	60 EI

Main

Atomizer	264 DP 12539.264.28
Spray nozzle	7 mm 12541.00.28 EI
Main jet	6413.160.02
Conical needle	K 28/4ª 8530.28.808
Throttle valve	16565.40.64

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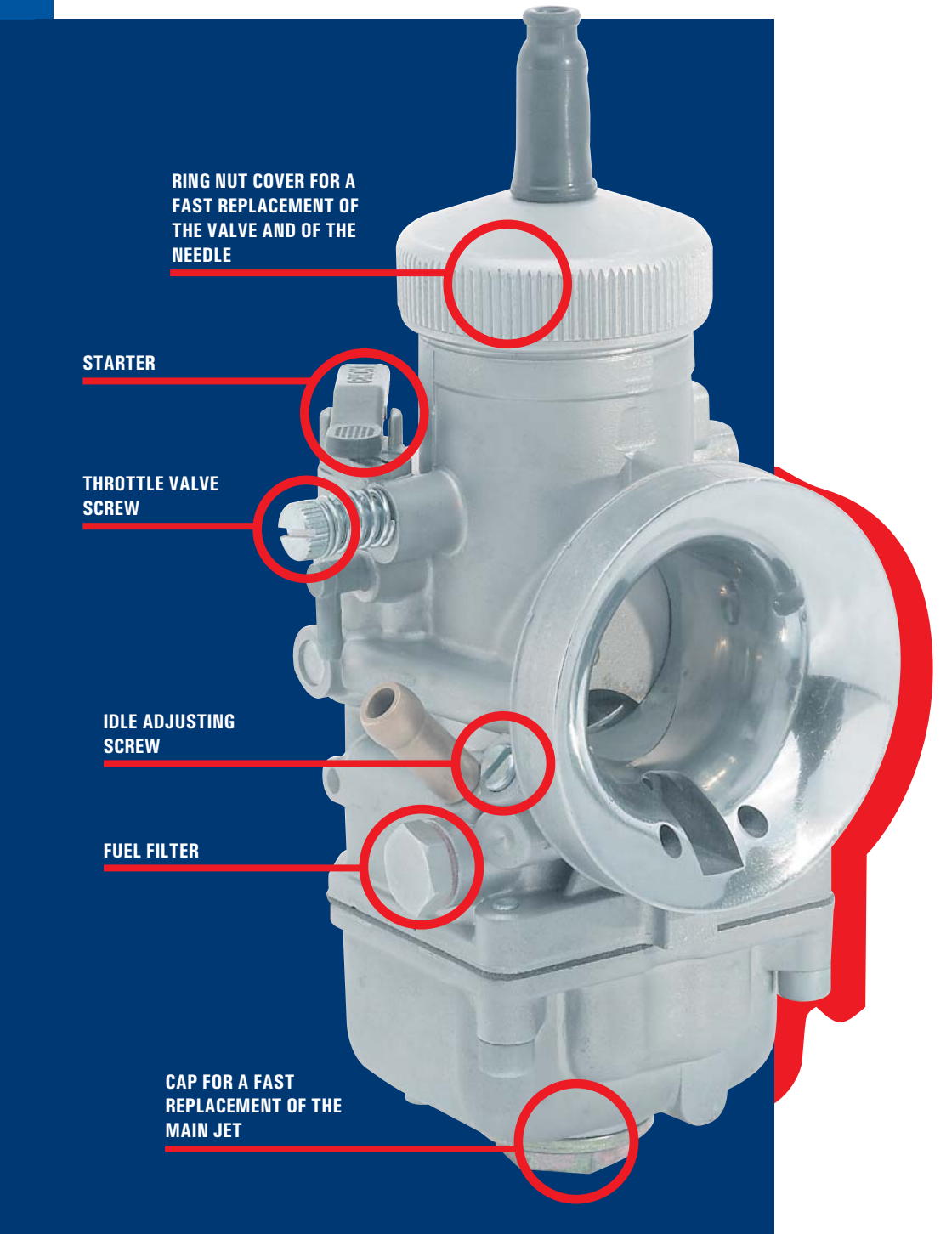
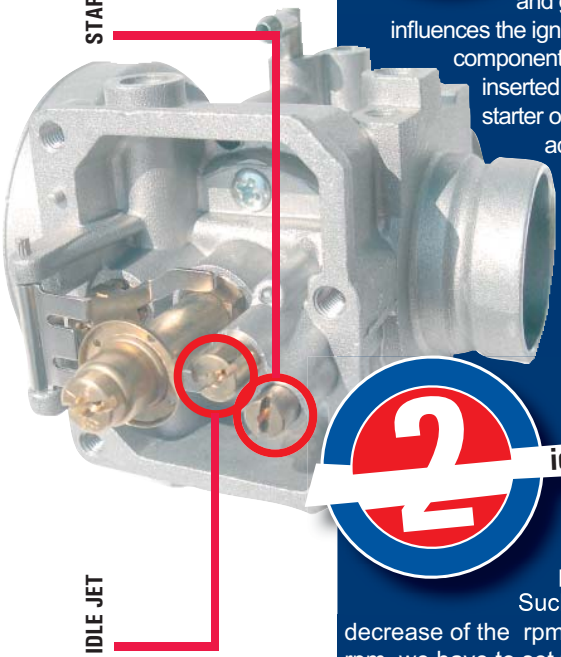

RING NUT COVER FOR A FAST REPLACEMENT OF THE VALVE AND OF THE NEEDLE
STARTER
THROTTLE VALVE SCREW
IDLE ADJUSTING SCREW
FUEL FILTER
CAP FOR A FAST REPLACEMENT OF THE MAIN JET

1 starting

Before starting the engine, please assure that the carburettor's float chamber and the feeding circuit are filled and in case of cold engine, open the starter and go ahead with the ignition. The component, which influences the ignition is the starting jet: higher the value of such component will be, richer the cold ignition phase with starter inserted will be. This kind of enrichment is active only with the starter on, therefore it affects only when such component is actuated.



2 idle

For the idle adjustment we operate on the hrottle valve screw, which moves the "stop" position of the valve itsself.
Such a component allows the increase or the decrease of the rpms at idle. Together with the adjustment of the rpm, we have to set the "title" i.e. the quantity of air/fuel at idle.
Operate on the **air screw**, which acts as a "leaner": by closing it we get an enrichment; by opening it a leaning
The influence of such a component, besides on the idle regularity, is detectable on the total or partial fast openings and on the returns at idle: if during the fast openings from idle we should notice some pauses, faults for lean, we have to tighten the screw in order to have an enrichment; we need to operate progressively by moving the screw of ¼ turns each time.
If the fault is due to too much fuel, we will have to open the air screw.
It's important to have a correct engine idle in order to have a partial and/or total good pick up without any hesitation and without shutting off during the release and return at idle condition.
The adjustment of the title at idle and of the set rpm is important even to improve the cold startings (with starter on) and the warm startings (with starter off).

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3 progression

On the progression, i.e. the first forth of the opening, more components interact, among them we find, as previously stated, the idle adjustment screw, the idle jet and the throttle valve.
The idle jet includes an external jet and an internal emultion jet: even in this case, for the enrichment it's necessary to increase the emulsioned jet, in order to lean such a component.
Another setting component is the **throttle valve**, which champfer influences more or less the idle and main circuit: higher is the component, more vacuum and flow speed will be reached with subsequent fuel increase on the intermediate and fast openings; therefore, by using throttle valves with a greater cut. we can get the contrary effect.

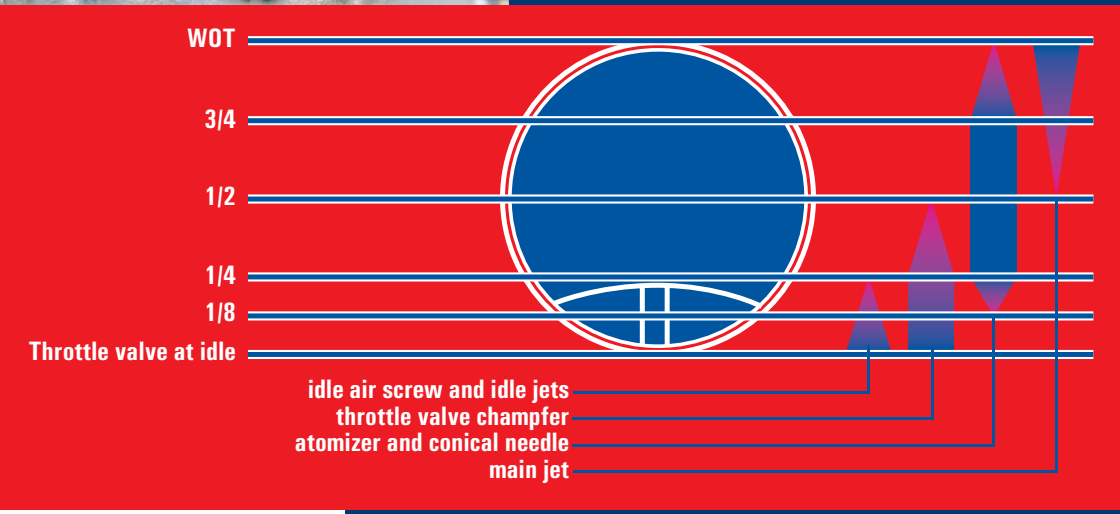
4 stabilized

Even for the partial load, different components such as the atomizer and the conical needle interact: if we need to enrich or to lean the entire curve (except for WOT), we have to act on the emulsion tube's diameter; on the contrary with the conical needle we can change, according to the profile, the curve partially (see encl. table). If we move the needle's position up, all the curve enriches, down all the curve leans. In this case even the wide open throttle is however influenced (function of the diameter of the needle top and position).

5 wide open throttle

The component, which mainly influences the wide open throttle is the main jet. As a matter of fact the variation of such a component, increases or decreases the fuel quantity at the wide open throttle or partially wide open throttle (up to one forth of the venturi's section).

We may suggest to start with a main jet of 5-9 points higher than the standard adjustment and go down progressively up to reach the compromise limit between performances and temperatures in order to avoid seizures or detonations for lean condition. If under power conditions that means with a completely wide open throttle valve or engine under load, we should need to change the fuel quantity, by changing the fuel level in the float chamber, we may change the floats With lighter floats the level decreases, having in such a way a leaning of the power and of the transient state in the fast total openings, on the contrary the heaviest ones increase the level, enriching the power and the transient state itself. It's important to check if the trim of the floats' arm, with the carburettor up side down, is parallel to the float chamber level and to an height of 4,0 +/- 0,3 mm at the end of the chamber itself.



The above picture represents the choke and shows the influence of the different components as far as the throttle gas opening is concerned; it's just indicative and it's however a function of the combination of the different components and of the geometrical features of the conical needle.

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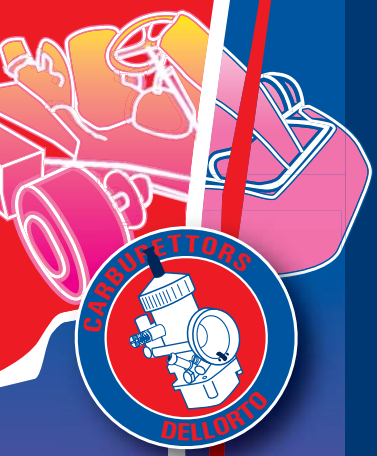
CONICAL NEEDLES
FEATURES - K TYPE

code	T	ref.N	Ø A	Ø B	C
K 001	3	8530.X.08	2.45	1.75	37.00
K 002	3	8530.X.08	2.45	1.75	42.00
K 003	3	8530.X.08	2.50	1.50	39.00
K 004	3	8530.X.08	2.45	1.50	39.00
K 005	3	8530.X.08	2.45	1.50	37.00
K 006	3	8530.X.08	2.45	1.75	39.00
K 007	3	8530.X.08	2.45	1.25	39.00
K 008	3	8530.X.08	2.50	1.50	37.00
K 009	3	8530.X.08	2.45	1.50	42.00
K 011	3	8530.X.08	2.50	1.25	39.00
K 012	3	8530.X.08	2.48	1.75	32.00
K 013	4	8530.X.08	2.45	1.25	38.00
K 014	3	8530.X.08	2.48	1.75	33.00
K 015	3	8530.X.08	2.50	0.60	36.00
K 016	3	8530.X.08	2.50	1.75	39.00
K 017	3	8530.X.08	2.42	1.75	40.00
K 018	4	8530.X.08	2.50	1.40	38.00
K 019	4	8530.X.08	2.50	1.40	40.00
K 020	4	8530.X.08	2.50	1.40	42.00
K 021*	4	8530.X.08	2.50	1.80	38.00
K 022*	4	8530.X.08	2.50	1.80	40.00
K 023*	4	8530.X.08	2.50	1.80	42.00
K 027*	5	8530.X.08	2.50	1.80	44.00
K 028	5	8530.X.08	2.50	1.80	41.00
K 029	4	8530.X.08	2.45	1.25	42.00
K 032	4	8530.X.08	2.48	1.70	44.00
K 035	4	8530.X.08	2.50	1.40	43.00
K 051	4	8530.X.08	2.52	1.40	43.00

The conical needle of the basic K28 adjustment is blue coloured highlighted.

The conical needles (*), due to the specific geometrical characteristic, act from the wide open throttle to more than half choke.



The SETTING UP KIT includes:

	Emulsionated idle jet (13086.X.02)	Main jet (6413.X.02)	Atomizer (12539.X.28)	Throttle valve (16565.X.64)	Conical needle (8530.X.08)	Float (15760.X.80)
To enrich	48 - 50 52 - 55	160-165 168-170 172-175	266 DP	30 - 35	K23 K27	5,2 g
Basic adjustment	45	160	264 DP	40	K28	4,0 g
To lean	35 - 38 40 - 42	150-152 155-158	262 DP	45 - 50	K21 K22	3,6 g

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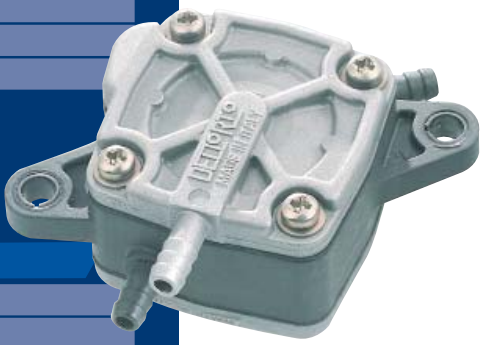
FUEL PUMP P34 - PB2

General Characteristics

- Pneumatic fuel pump for motorcycles' application
- Assembly by screws and relevant reference points
- Pumping by diaphragm
- By pass internal regulator
- Operating frequency: 10.000 pulses/min.

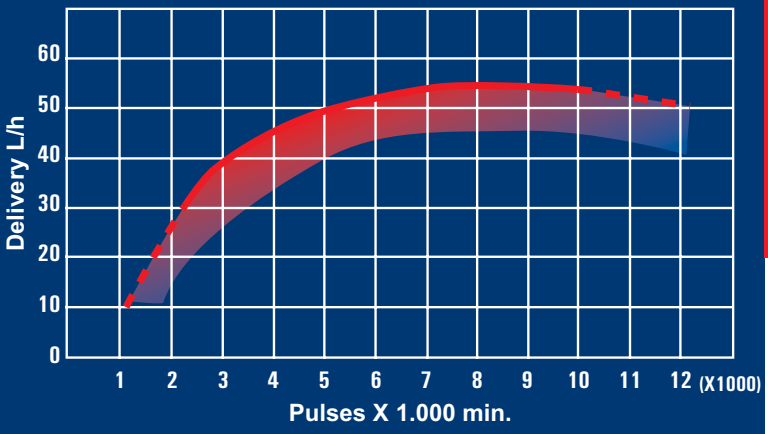


Main Technical Features

- Operation by pressure variation
- Nominal air flow: ~ 55 l/h
- Nominal pressure: 0,05-0,1 bar
- Direct or at distance pneumatic connections
- Plastic body
- "Umbrella" check valves and seats machined in the body
- Weight: 100 gr

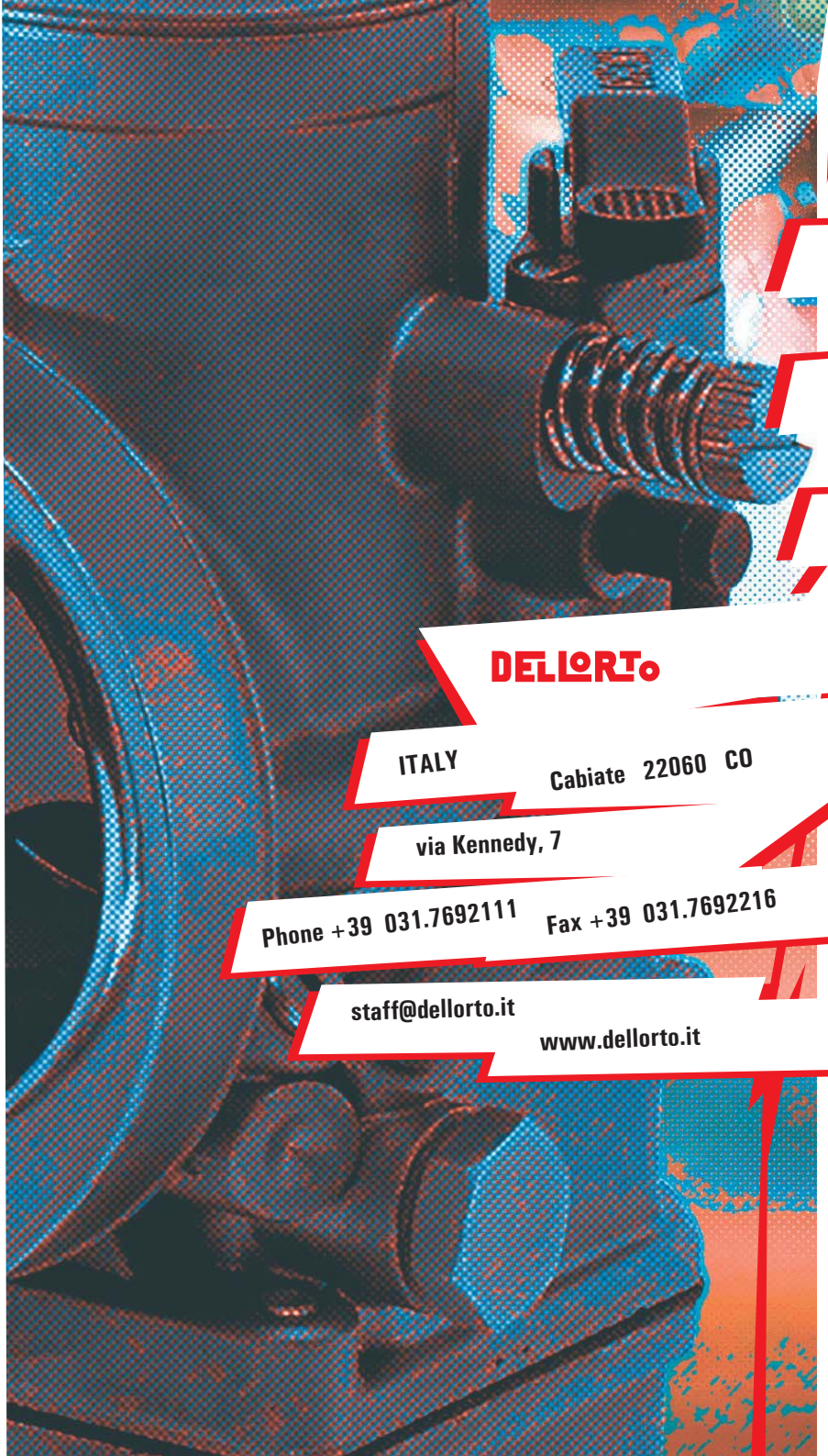
Fuel pump 52628-78 review kit

Performances



IMPORTANT

In order to get information on the engine and all recommendations for a correct installation of the Fuel Pump P34-PB2, DELL'ORTO'S TECHNICAL SERVICE prepared a **TECHNICAL DATA FORM**.
Please fill it in and return it to **DELL'ORTO S.p.A.**



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