

**GREEN POWER LINE** includes the full set of Portable Actuation devices for valves, penstocks and sluice gates equipped with a Li-ion battery engine, offered in two versions: **APB120N** and **APB160N**.

The output torque (in Nm) and the related output speed (in RPM) of the APB devices are adjustable according to the finger pressure on the accelerator button: when fully pressed, the units operate at their continuous torque value, further reaching their maximum torque when facing resistance during the operation; above these values, a thermal circuit breaker will stop the engine until the next manual 'reset'. Very simple and easy to use, these devices are the ultimate tool for water operators looking for power on particular sites, such as underground chambers, or in case of multiple 'short' daily interventions on valves and gates, as well as representing a valuable alternative to the 'classic' electrified fixed actuation systems.

## APB120N – Hikoki 36V Brushless engine



### Technical data

Max torque	: 137 Nm / 101,05 Ft/lb
Continuous torque	: 95 Nm / 70,06 Ft/lb
Output speed	: 114 RPM
Engine speed	: 25000 RPM
Reduction ratio	: 4,8/1+50/1
Engine power	: 1000 W
Battery	: Hikoki 18-36V 4,0 Ah
Dimensions	: 340x220x(h)360 mm
Weight	: 7,2 Kg
Connection	: Q24x24x(h)5 mm

## APB160N – Hikoki 36V Brushless engine



### Technical data

Max torque	: 176 Nm / 129,81 Ft/lb
Continuous torque	: 168 Nm / 123,91 Ft/lb
Output speed	: 78 RPM
Engine speed	: 25000 RPM
Reduction ratio	: 4,8/1+70/1
Engine power	: 1000 W
Battery	: Hikoki 18-36V 4,0 Ah
Dimensions	: 340x220x(h)360 mm
Weight	: 7,2 Kg
Connection	: Q24x24x(h)5 mm

**APB120N / APB160N features:**



(1) **Hikoki 36V engine:** based on 'Brushless' technology, it offers maximum efficiency, power and reliability in an 'eco-friendly' way, guaranteeing a very reduced energy consumption.

(2) **Gear case:** composed by a primary bevel gear in Ergal alloy coupled in axis to a secondary micro-reducer, with the goal to ensure the APB device with sturdiness and high reliability over time.

(3) **Control Handle:** with a practical and soft-grip anatomical shape, it includes the accelerator button and the selectable lever for the rotation on Left/Block/Right positions.

(4) **Hikoki 36V Battery connection:** with a renewed design that makes everything very compact, ergonomic and balanced, it includes also an automatic LED light for night work.

(5) **Protection cover:** made of painted stainless steel, it ensures strength and solidity to the APB device; at the same time, it guarantees the correct ventilation of all the internal electrical parts.

(6) **Side Handle:** mountable on both left/right side of the tool, it facilitates the use of the APB tool to both left and right-handed operators.

(7) **Thermal circuit breaker:** it's the electrical protection of the tool against any overloads. In case of absorption higher than 16A, the breaker turns off the APB device (until the manual 'reset' of the operator)

(8) **Anti-rotation Pin:** adjustable in its plate, it guarantees a quick, safe and stable fixing of the pin itself during the connection between the APB actuator and the gate/valve.

(8) **Safety Split:** galvanized and with its steel cable, it allows and easy and safe coupling between the APB device and the gate/valve to be moved.

(9) **Spindle:** made of steel, it's the point where the operator must install the proper bushing in order to transmit the rotation movement from the Portable Actuator to the bevel gear on the gate/valve.

**APB120N / APB160N Standard supply:**



(A) **Plastic case:** with internal shockproof foam padding on the inside, for an easy and safe transport of the APB device to the sites of the daily interventions.

(B) **N. 02 Hikoki Multivolt 18-36V li-ion batteries:** from the latest generation series, they include triple power output (if compared to the previous models) and the convenient LED charge status indicator. The batteries are supplied along with the **Hikoki Charger**, including features as: fast charging system, USB connection, cooling fan and LED system indicating charging and/or any failure.

(C) **Shoulder Belt:** it must be connected at the support bracket and it allows the operator to easily transport and handle the APB unit during the various stages on the intervention sites.

(D) **Anti-rotation Pin Set:** in three different sizes and interchangeable, they always guarantee the correct and safe 'block' of the Portable Actuator to the gate/valve.

## Usage of the APB/APS Portable Valve Actuators on gates/valves

In order to transfer the 'rotation' from the Portable Actuator to a bevel gear installed on a gate/valve, it is necessary to install a **Bushing** (photo 1) on the actuator's spindle using the four screws supplied.

After that, in consideration of the fact that the APB/APS devices produce a huge Nm output force, it is also necessary to install an **Anti-Rotation Flange** (photo 2) on the bevel gear of the gate/valve. This avoids the 'snatch' rotation of the APB/APS tool while in operation and prevents any potential injuries to the operator.

The safety system is completed by the **Anti-Rotation pin** and its **Safety Split** that allow to keep the actuator 'locked in position' while operating. This is a safety mechanism required by law. *The manufacturing company is not responsible for any damage to people (o properties) resulting from its failure or incorrect use.*

Therefore, once the correct bushing has been installed on the APB/APS and the proper A-R flange on the bevel gear, all that's left to do is to connect the bushing to the reducer's shaft, make sure that the A-R pin enters the A-R flange, then close it using its safety split. Now, you are 100% ready to operate.

Photo 3 shows this connection phase (this procedure is the same for both sluice gates/penstocks/valves)



1. Bushings (to mount on the APB/APS)



2. A-R Flanges (to mount on the bevel gear)



3. Connection of the APB/APS to the gearbox shaft

## About interventions on multiple series of gates/valves

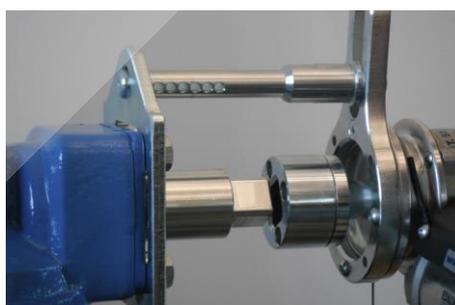
When planning to operate on several gates/valves with bevel gear shafts of different diameters, it is necessary to standardize them all by installing a series of **Adaptors** with male square 24x24mm that fits the 'standard' square 24x24mm female bushing on the APB/APS tool.

All the **Adaptors** (photo 4) have a 24x24mm square male connection and a cylindrical female part of different sizes. It is therefore necessary to identify in advance which types are necessary, and then proceed with their installation along with the corresponding anti-rotation flange; after this installation work, it will be possible to operate on all gates/valves without continuous changes of bushing (photo 5).

However, at this point it will no longer be possible to use the original hand-wheels. So, in order to perform manual interventions again, it will be necessary to use the **Square 24mm Hand Crank**, that combined with the **Padlocking Kit** allows also to lock the bevel gear on the gate/valve (photo 6) in order to avoid unauthorized movements.



4. Q24x24 adaptor mounted on the bevel gear



5. Connection of APB/APS to A-R Flange + Q24 adaptor



6. Q24 hand crank + locking system on bevel gear

## Manual emergency interventions on electric actuators

'Emergency operations' are all those manual interventions, performed on Electrified Actuators in absence of electricity, using the small manual hand-wheel on the body of the actuator itself.

With the aim of providing a full service to its Customers, Scapin has designed and created a series of custom kits to install on the emergency of the most common models of AUMA / BIFFI / DREHMO / ROTORK electrical actuators.

The installation of these **Emergency Kits** is very simple: once the hand-wheel has been removed from the electric actuator, it will be sufficient to mount the adaptor and the anti-rotation flange using the supplied screws. After that, the emergency can be performed using an APB/APS device. Once the intervention has been completed and the Portable Actuator disconnected, it is possible to both remove the Emergency Kit, or leave it installed. On this last situation, it is possible to restore the manual hand-wheel as it was originally by mounting an appropriate Q24 adaptor (supplied with the kit) on it and then, if necessary, lock it using a removable padlock (see the photos below).

The usage of the APB devices is highly recommended on Drehmo electric actuators, in order to not burden its emergency output shaft with excessive weight. On the other hand, Auma and Biffi actuators can be easily handled with all the APS devices.



Emergency Kit on AUMA Electric Actuator



Emergency Kit on BIFFI Electric Actuator



Emergency Kit on DREHMO Electric Actuator



APB/APS tool on AUMA Electric Actuator



APB/APS tool on BIFFI Electric Actuator



APB/APS tool on DREHMO Electric Actuator



Visit our YouTube Channel to see our HD videos showing the APB/APS devices at work