













ELECTRICITY FROM RENEWABLE ENERGY

HYDROPOWE



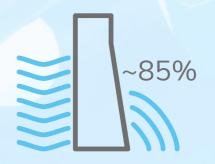
+80%
of the world renewable energy is generated

from Hydropower.

Hydropower is the **biggest** and cheapest renewable energy source of the world.



share of Hydropower
in the total world
electricity supply.



dams in the world

are not used for
Hydropower generation.



most efficient

Hydroeletric powerplants are the most efficient technology to produce electricity. Zero consumables, long-life, endless supply, low recurring cost.

THE CONTINUOUS
OPERATION OVER DECADES
GUARANTEES HIGH PROFIT.

Small hydropower has no CO₂ emissions, which would be produced from other energy sources.

This is an important contribution to the climate protection.



No resources are wasted and the nature is not polluted with waste products.



unlimited

Waterpower is an unlimited energy source.



noiseless

Waterpower plants are noiseless.

WELL ENGINEERED TECHNOLOGIES ENSURE RELIABLE FUNCTIONING AND

LONG LIFETIME.

sustainable water supply for irrigation.

The barrages of waterpower plants form living space for human and nature and prevent uncontrolled floods.

Waterpower secures jobs.



DELIVERING EXCELLENCE

THE STRENGTH OF FLOVEL IS TO OFFER WATER-TO-WIRE PACKAGES FOR



S&M Hydro Small & Medium Hydro (up to 60 MW units)



RenServ (Renovation, Modernisation and Upgradation)

Cutting Edge Technology Modern Machinery & Facilities

Highly Skilled Personnel Stringent Quality Checks & Processes

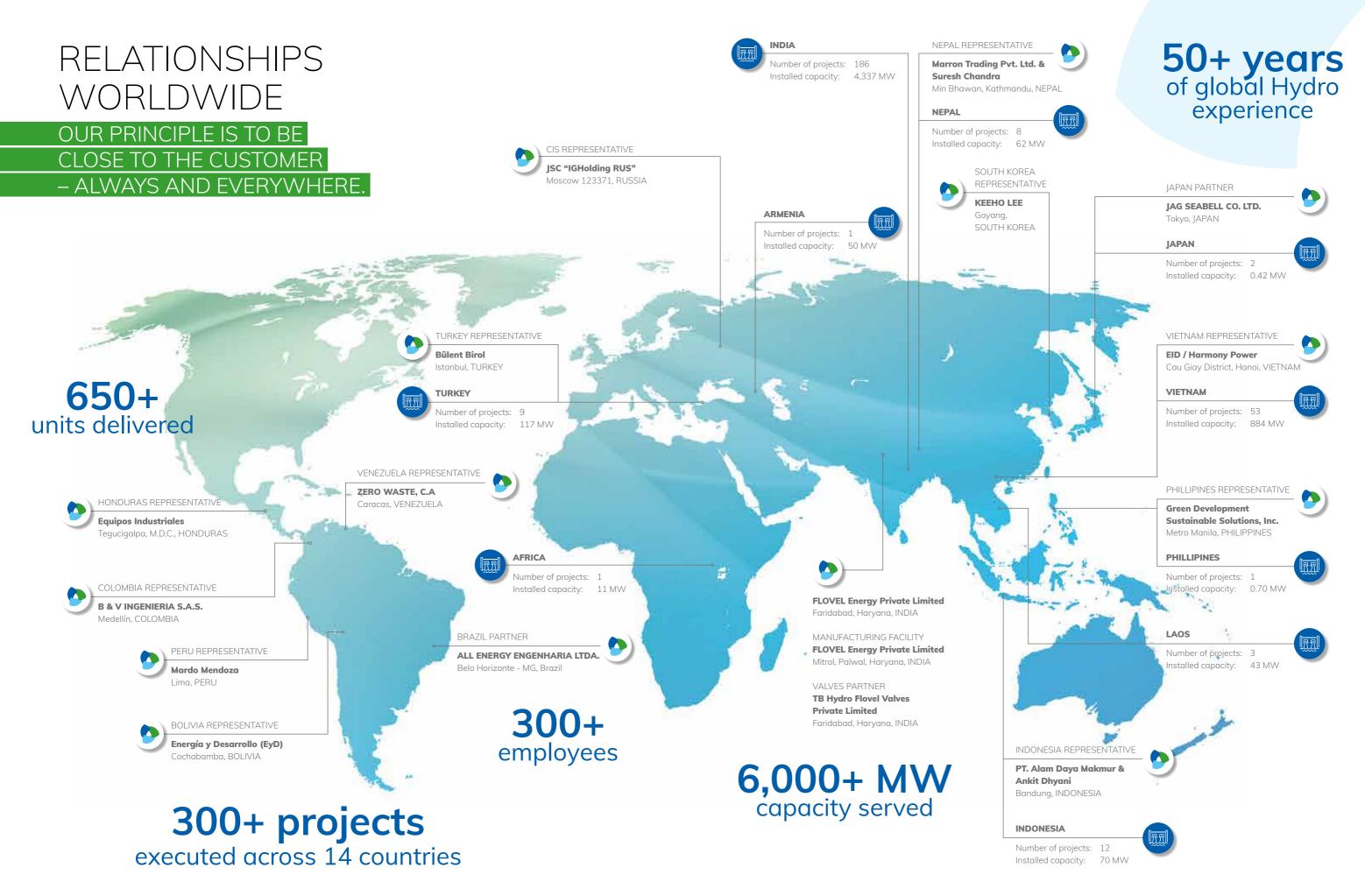
Advanced Solutions

- **» Safety:** Optimum Technology deployment for infallible safety and reassuring reliability
- **» Performance:** Higher plant availability, system efficiency and Lower downtime

As manufacturer of Hydraulic Turbines and Valves, we are a full line supplier of Electromechanical Equipment & Services for small & medium Hydropower projects including Renovation, Modernisation, Upgrading and aftermarket services for existing power plants.

We provide turnkey Hydro Power Solutions – with cohesive integration of design, manufacturing, execution and service support. With our incessant focus on quality and total customer satisfaction, we have set new benchmarks in 'implementation finesse' that have translated into sustainable benefits for our customers.

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ADVANTAGE ON YOUR SIDE

CONTRACTING

- » No hidden clauses
- » Dedicated point of contact

SOLUTION DEVELOPMENT

- » Collaborative approach
- » Fully equipped, technologically advanced design facilities

PRODUCT MANUFACTURING

- » State-of-the-art manufacturing facilities
- » Global standard quality checks & processes

Profits &

Peace of

Mind

PROJECT IMPLEMENTATION

- » On-time as guaranteed delivery
- » Faster response time to issues

POST-IMPLEMENTATION

- » High plant availability
- » Quick response to any issue

Single source responsibility

Senior management involvement

Safe and high-performance products

Within budget, on-time delivery

Lower Cost of Ownership translating into higher returns

Manufacturing facility



FLOVEL is certified for Integrated Management Systems, which includes ISO 9001:2015, ISO:14001:2015, ISO 45001:2018 and CE Certification.







Corporate office

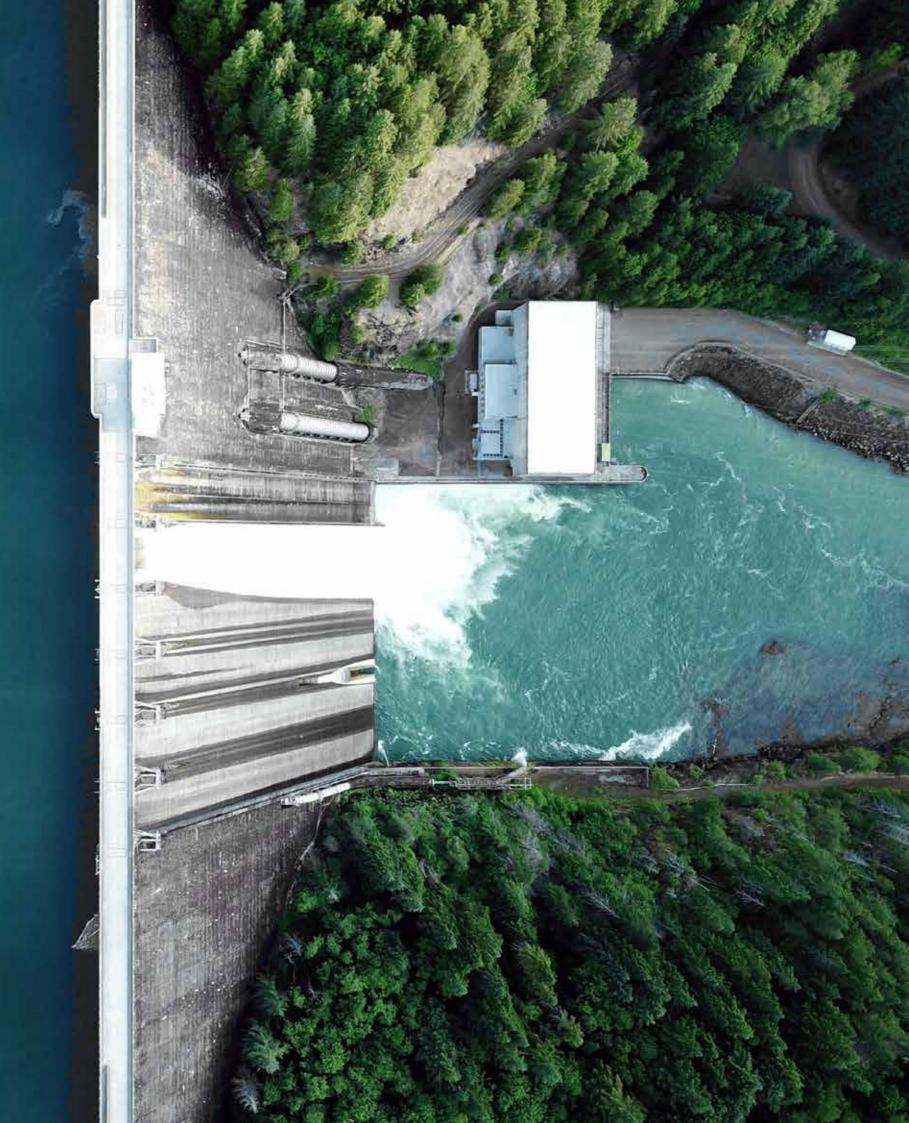


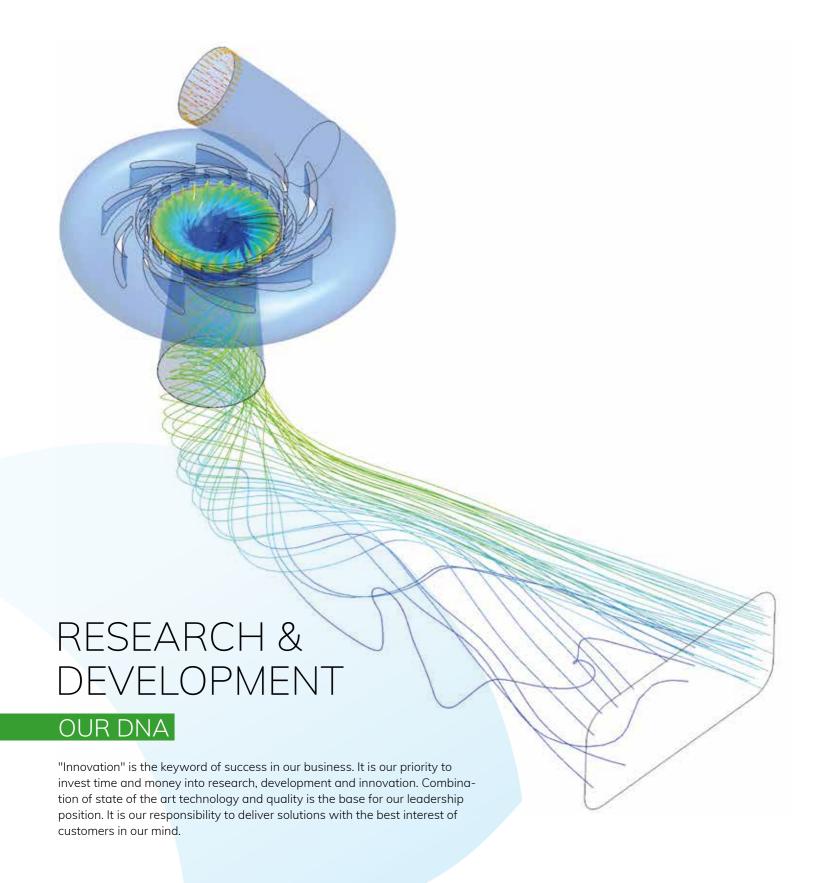


CALMNESS IS THE KEY TO POWER

FROM WATER TO WIRE.

FLOVEL believes in customer delight. With its technological expertise and senior management's commitment it brings the Small & Medium Hydro projects alive on time, with maximum performance and minimum downtime. Years of experience have also enabled us to think through and implement projects calmly and clearly. Our customers are glad to have chosen FLOVEL for their Hydropower project.





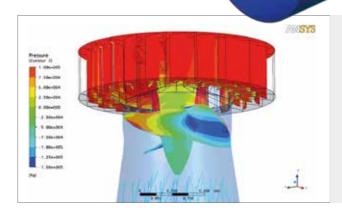


FEM

Finite element method (FEM) tools for calculating stresses, strains and deflections in components of a hydraulic turbine.

MODEL TEST

Should the customer require a model test to be performed, FLOVEL is equipped to have a model test conducted at an accredited / independent model testing laboratory.



CFD

Tools to accurately predict flow characteristic. CFD is used to improve hydraulic design of turbine water passages, including the runner and static components. For renovation projects CFD is a very important tool for improving turbine output, efficiency and cavitation characteristics.





A GOOD JOB FOR AN EXCITING MARKET

FLOVEL's key personnel and co-workers in all functions are among the best in the Country with right educational qualifications and vast experience in their respective field and trained at various international locations to work to global standards. FLOVEL has a total strength of more than 300 people who by their knowledge, experience and innovative approach assure a competitive edge to the market and to a long term development of the company.













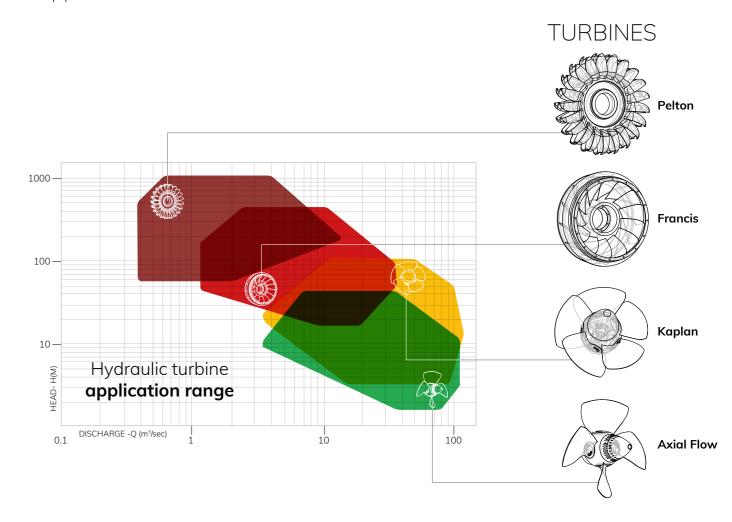


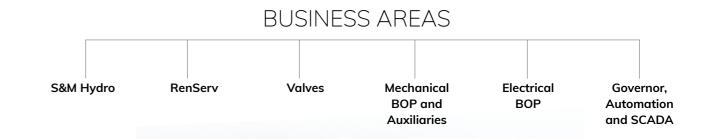


QUALITY MADE WITH PASSION.

PRODUCT OVERVIEW

It is our commitment to produce quality in all spheres of operation. FLOVEL is a single source supplier and integrator of all components of hydropower plants including inlet valves, hydraulic turbines, generators, control systems, switchyard equipment and much more.

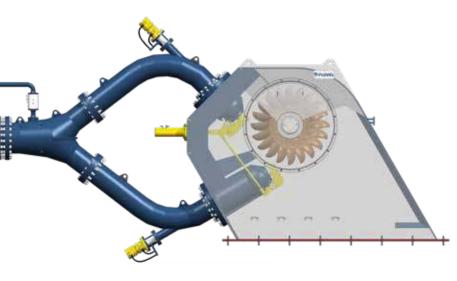




PELTON TURBINES

for high head applications

Pelton Turbine is an impulse turbine used primarily for applications with high head and small flows. FLOVEL's Pelton turbines are based on decades of know-how and state-ofthe-art technology. These Pelton turbines guarantee the highest operating efficiency and reliability.





- » Fully Forged or Cast runner
- » Runner mounted on extended shaft of the generator
- » Full unit assembled in factory and shop tested
- » Internal or external Servomotor options
- » Simple interface with civil works
- » Guarantees for efficiency based on model test

Application Range:

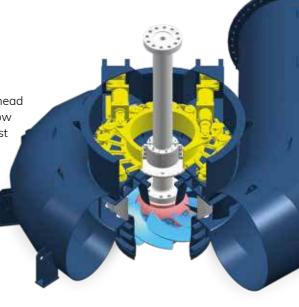
- » Heads up to 1,000 Meters
- » Horizontal axis (1 to 3 jets)
- » Vertical axis (2 to 6 jets)

KAPLAN TURBINES

for low head applications

Kaplan Turbine is a reaction turbine used primarily for applications with low head and large flows. FLOVEL's Kaplan turbines are based on decades of know-how and state-of-the-art technology. These Kaplan turbines guarantee the highest operating efficiency and reliability.





FEATURES

- » Oil free runner hubs
- » Internal or external Servomotor option
- » Maintenance free water-lubricated guide bearing
- » Blade dismantling without runner removal
- » Library of 20 models available to choose from
- » Guarantees for output, efficiency and cavitation based on model test

Application Range:

- » Heads up to 70 Meters
- » Runners with 3 to 8 blades
- » Double or Single regulated
- » With or without Gearbox
- » Steel, Concrete Spiral or Syphon Intake

FRANCIS TURBINES

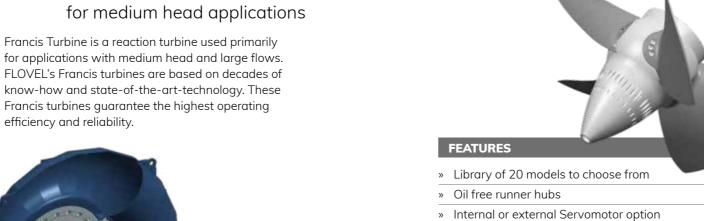
for applications with medium head and large flows. FLOVEL's Francis turbines are based on decades of know-how and state-of-the-art-technology. These Francis turbines guarantee the highest operating efficiency and reliability.



- » Weld fabricated or Forged runners
- » Library of 40 models available to choose from
- » Guarantees for output, efficiency and cavitation based on model test
- » Runner mounted on extended shaft of the generator
- » Common base frame concept for horizontal units

Application Range:

- » Heads up to 450 Meters
- » Horizontal or Vertical axis
- » Steel or Concrete Spiral





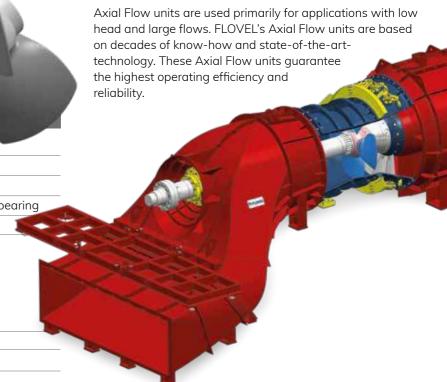
for very low head applications

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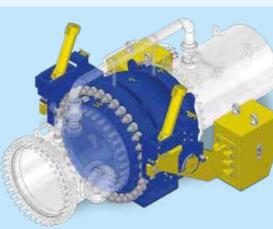
- » Maintenance free water-lubricated guide bearing
- » Blade dismantling without runner removal
- » Guarantees for output, efficiency and cavitation based on model test

Application Range:

- » Heads up to 35 Meters
- » Runners with 3 to 6 blades
- » Double or Single regulated
- » With or without Gearbox
- » Horizontal, Diagonal or Vertical orientation









VALVES

FLOVEL manufactures full range of Valves under its joint venture with TB Hydro, Poland. These valves are manufactured by JV company TB Hydro Flovel Valves Private Limited.

TYPES

- » Butterfly Valves
- » Spherical / Ball Valves
- » Pressure Relief Valves etc.



MECHANICAL BOP & AUXILIARIES

SCOPE

- » Oil Pressure System for turbine, MIV & PPV
- » Cooling Water System
- » Drainage System
- » Dewatering System
- » Crane
- » Fire Fighting System
- » Ventilation & Air Conditioning System
- » Compressed Air System
- » Bearing Lubrication System
- » Oil Filtration System
- » Flow & Level Measurement System
- » Vibration Measurement System

GENERATOR, AVR & AUXILIARIES

- » Control & Protection System
- » Generator Transformers
- » AC-DC distribution
- » LV and MV-switchgear
- » Bus Ducts
- » Cables, HV, LV, Control & instrumentation
- » Outdoor Switchyard equipment
- » Integration of automation system, governing system, electrical system, mechanical system etc.
- » Digital automation of mechanical, electrical, LV system & other auxiliaries



ELECTRICAL BOP

We deliver tailor-made systems as per customer requirements. Our solutions are safe, reliable and provide cost-effective operation. We are a single source provider ensuring complete service and seamless availability for your hydropower plant and all its components and systems. Our long-term process know-how and control system expertise in hydropower applications coupled with high efficiencies and post implementation service brings the Advantage on your side.

GOVERNOR, AUTOMATION & SCADA







POWER GENERATION OPTIMIZATION (PGO) IS DEVELOPED BY FLOVEL FOR:

- » Optimization of generation with time stamped sequencer
- » Monitoring of plant parameters, Weather & Dam level
- » Email reporting & SMS services
- » Chatbot (Let's talk to the plant)
- » Mobile application for real time data
- » Plant Load Factor





Erevan, Armenia

Type of Turbines: Vertical Francis
Rated Head: 88.35 m
Installed Capacity: 2 x 25,000 kW



Type of Turbines: Vertical Francis Rated Head: 276.23 m

Installed Capacity: $2 \times 18,060 \text{ kW} + 1 \times 8,662 \text{ kW}$







Type of Turbines: 'PIT' Type – Axial Flow Rated Head: 6.40 m

Rated Head: 6.40 m Installed Capacity: 4 x 3,600 kW





Type of Turbines: Vertical Pelton 6 Jets Rated Head: 322.50 m
Installed Capacity: 2 x 26,400 kW





Type of Turbines: Vertical Francis
Rated Head: 109.00 m
Installed Capacity: 2 x 15,000 kW









HEALTH & SAFETY ACTIVITES

FLOVEL IS ALWAYS EXPLORING WAYS
TO TAKE THE EVER IMPORTANT ISSUES OF
HEALTH & SAFETY TO NEW LEVELS.

At FLOVEL we have a strong culture of working safely and believe in continuous improvement and work towards safe working at both office and factory. Our people are trained on regular basis to ensure competency in completing their tasks.

From our personal surroundings to the workplace, and then further to the community around, we are striving to build a better environment, as well as create a workplace that is safe and hazard-free, complying with our policy on Health and Safety.

FLOVEL is certified for Integrated Management Systems, which includes ISO:9001, ISO 14001, ISO 45001 and CE Certification.

With everything that comes with our daily business we reflect on our core-values. Together these values bring:

THE ADVANTAGE ON YOUR SIDE

Flexible Sustainable Accessible
Excellence
Integrity Flexible Relationship Professional Reliable
Trust Responsive Flexible
Trust Responsive Flexible
Trust Responsive ACCessible Performance
Flexible Trust
Performance Innovation Commitment
Performance Efficient Innovation Flexible
Commitment Sustainable
Commitment Sustainable
Commitment Sustainable
Commitment Sustainable
Commitment Sustainable
Commitment Sustainable
Professional Reliable Excellence Excellence
Innovation Flexible Performance Reliable Reliable Reliable
Innovation Flexible Professional Reliable Excellence
Innovation Flexible Reliable Reliable
Frofessional Reliable Excellence
Innovation Flexible Reliable Reliable
Frofessional Reliable Reliable
Frofessional Reliable Reliable
Frofessional Sustainable Excellence Excellence Trust Uncompromising Flexible Relationship Passion Flexible Relationship Flexible Relationship Flexible Responsive Responsive Responsive Responsive Responsive Responsive Responsive Integrity Relationship Flexible Responsive Recomposition Relationship Relationship Relationship Responsive Res Sustainable need to sufficient the sufficient of Relationship Innovation Relationship Accessible Reliable Transparency Accessible Technology Un e Sustainable Technology Performance ive Trust Sustainable Technology Performance Innovation Passion No o Flexible Passion Reliable Responsive Husting Efficient Innovation Reliable Responsive Husting Efficient Innovation Reliable Responsive Reliable Re sponsible Professional Professional Integrity Innovert ne Passion Excellence Trust Professional Integrity Professional Inte Interite in the control of the contr Excellence ent Integrity Accessible Local Transparency Passion Commitment Sustainable Integrity Sustainable Passion Integrity Innovation 1. Responsible Passion Integrity Innovation 1. Responsible Passion Integrity Innovation 2. Responsible Passion Integrity Innovation 3. Responsible Integrity Inte Commitment Reliable Accessible
No cutting corner
Accessible Responsive Trust





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