



IDROBENNE®

The grab expert.



PV
Orange peel grapples

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PV

**Heavy-duty orange peel grapples
for
industrial material handling**

18-40 Ton excavators range

Left: PV 5/800 standard tines

Bottom: PV 5/500 standard tines

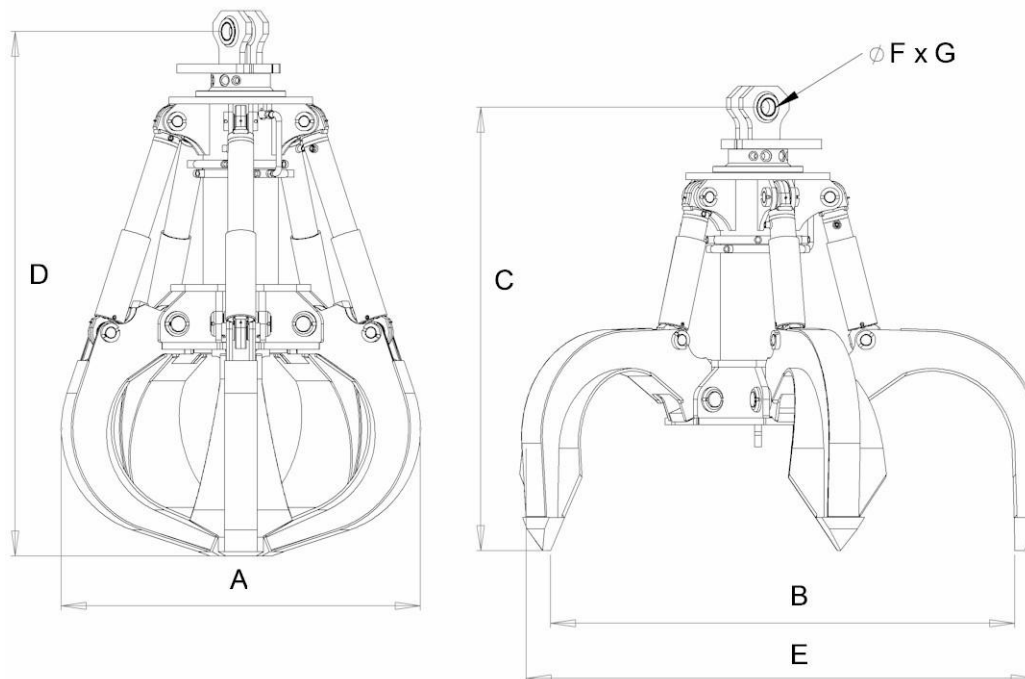


Orange peel grapples PV line - Presentation



5 sizes available:

- **0,5 - 0,6 m³** for **18-23 ton** machines,
- **0,65 - 0,8 - 1 m³** for **24-40 ton** excavators



Model	Exc. weight	Jaw s. n.	Cap. l.	Weight Kg.	Max load daN	Max BAR	A	B	C	D	E	ØF x G
PV - 4/500	18-23	4	500	1020	4500	350	1460	2000	1820	2120	2180	50 x 100
PV - 5/500		5	500	1200	6000	350	1460	2000	1820	2120	2180	50 x 100
PV - 6/500		6	500	1350	6000	350	1460	2000	1820	2120	2180	50 x 100
PV - 4/600		4	600	1100	4500	350	1540	2120	1850	2180	2320	50 x 100
PV - 5/600		5	600	1300	6000	350	1540	2120	1850	2180	2320	50 x 100
PV - 6/600		6	600	1450	6000	350	1540	2120	1850	2180	2320	50 x 100
PV - 4/650	24-40	4	650	1550	6000	350	1465	2060	1850	2190	2220	70 x 150
PV - 5/650		5	650	1700	8000	350	1465	2060	1850	2190	2220	70 x 150
PV - 6/650		6	650	1900	8000	350	1465	2060	1850	2190	2220	70 x 150
PV - 4/800		4	800	1500	6000	350	1585	2220	1875	2230	2420	70 x 150
PV - 5/800		5	800	1750	8000	350	1585	2220	1875	2230	2420	70 x 150
PV - 6/800		6	800	1970	8000	350	1585	2220	1875	2230	2420	70 x 150
PV - 4/1000		4	1000	1750	6000	350	1700	2355	1890	2300	2600	70 x 150
PV - 5/1000		5	1000	2000	8000	350	1700	2355	1890	2300	2600	70 x 150
PV - 6/1000		6	1000	2170	8000	350	1700	2355	1890	2300	2600	70 x 150

Technical data may vary without prior notice.

Orange peel grapples PV line - Presentation

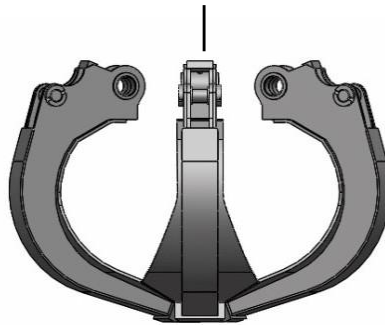


Tines options:

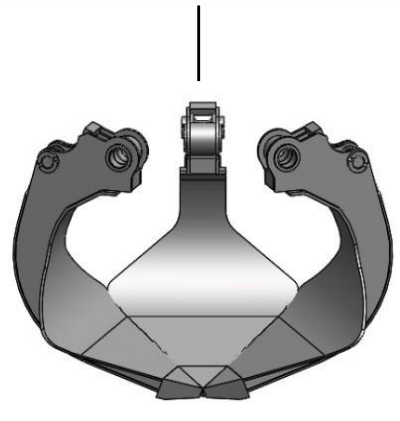
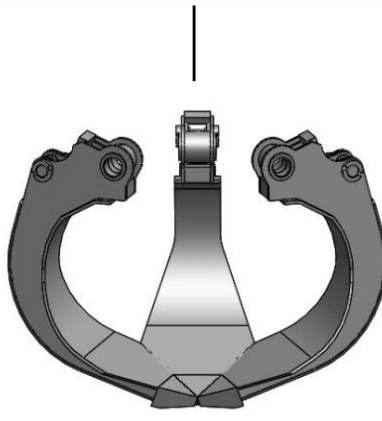
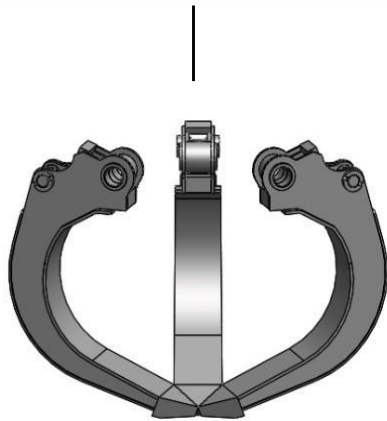
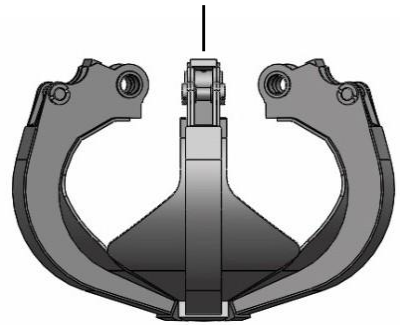
Open



**Semi-closed
(standard)**



Closed



PV 4/800 open



PV 5/800 standard



PV 6/800 closed



The best choice for the most demanding applications

PV grapples are ideal for handling larger volumes of metal scrap or waste. The design of the grab grants a high gripping force, due to the power of the generously-dimensioned cylinders and to the innovative geometry, which provides long leverages. PVs are numbered among the strongest polyp grapples available on the market. PV line is suitable for the better performing material handlers and excavators up to 40 Tons.

Loose materials handling

Orange peel grapples are gripping devices with independent tines, each one set in motion by a double-acting hydraulic cylinder. This allows the equipment to have a good grip on loose materials and non-symmetrical objects. The number of tines may vary from four to six. They can be mounted on stationary cranes, tracked excavators and material handlers.

Rotator options

The grapple's innovative design allows the equipment to incorporate a very robust rotation mechanism, both mechanical, (limited 250° rotation) or hydraulic (continuous rotation).

Strength and reliability

The large displacement of cylinders, working at a pressure of 350 BAR, provide excellent penetration force into the handled materials and superior gripping capacity. The hydraulic circuit is confined in the upper part of the main frame. Maintenance operations are simple and quick, due to reduced number of parts and to easy access to all hydraulic components.

Structural quality - made in Italy

PV orange peel grapples are made using high tensile steel (WELDOX – DOMEX) for structural parts and wear-resistant plates (HARDOX) for the massive jaws and the tips. The tines are strongly reinforced, to grant reliability in the hardest working conditions. Large diameter, induction hardened chrome pins and bushings are used in all grapple junction points. Construction and assembly are carried out in the Company's workshop of Isorella (Brescia) - Italy, to ensure a high degree of accuracy and a tight fit of all components.

Custom made links

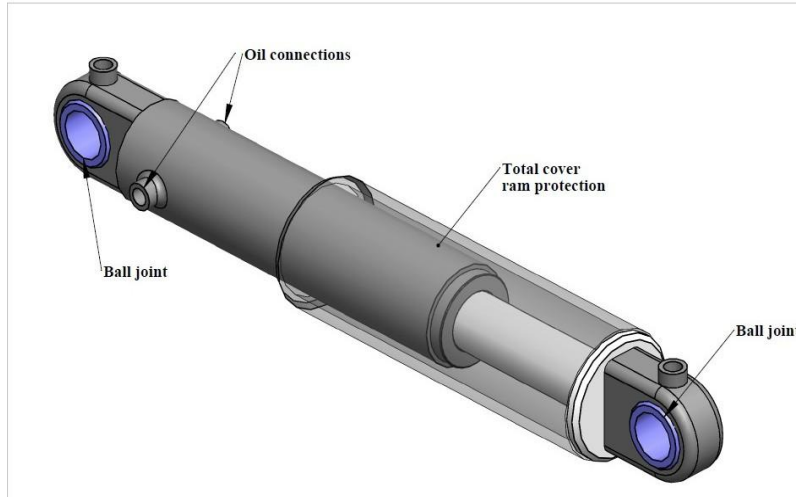
The polyp grapples must be mounted on operating machines through a swinging link that allows "pendulum" movement in the four horizontal directions. Idrobenne can supply custom-made links for any operating machine.

Protections for flexible hoses

The peculiar design of PV grapples makes hose protections redundant. Thanks to the cylinder design, flexible pipes are confined in the top part of the grapple's main frame, so to be as far from the material as possible. This doesn't only reduces costs, but enhances performances because of the reduced overall weight. Diehard protection-lovers can be satisfied, anyway: removable shields are supplied as optional.

Ultimate cylinder design:

Idrobenne's cylinders are built with an **internal hydraulic channel** in place of the external metal pipe. This feature eliminates the small metal tube, which traditionally is one of the weak points of all grabs and, at the same time, **allows both oil connections to be on the top of the grapple**, far from the handled material. Last but not least, the internal oil channels enables the ram protections to be made of a steel tube, **completely closed**. Such a **dust-proof cover** represent the ultimate design in chrome ram protection. Moreover, cylinders are provided with generously dimensioned **ball-joints on both ends**, in order to face the hardest working conditions. They are also **hydraulically cushioned**. This avoids the banging on mechanical stops, reduces wear and adds life to the cylinder.



PV Style



- No metal pipe on the back of the cylinder
- Cylinder ram is **sealed** inside the dust-proof protection

Vs.

other



- There's still a pipe on the back of the cylinder
- **Cylinder protection is open** on the back

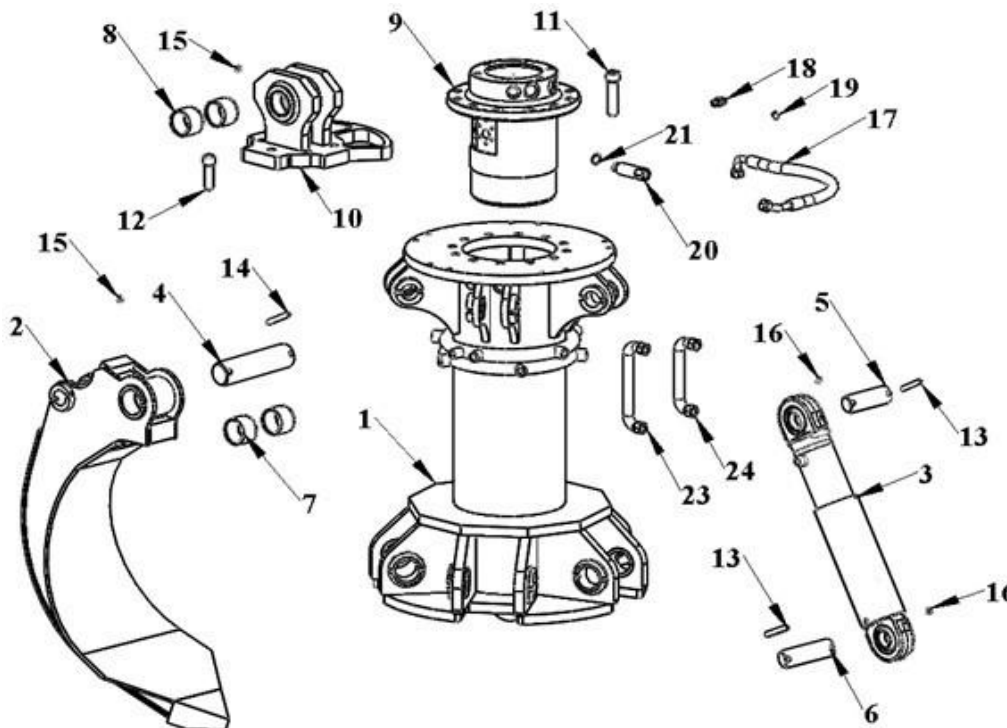
Construction materials of Idrobenne® grapples:

PART DESCRIPTION	MATERIAL	HARDNESS HB HRC	TREATMENT
Main frames	S 690	88 HB	Hot Laminated
Tines	Hardox 400	400 HB	-----
Tips	Hardox 400	450 HB 400 HB	-----
Axes	39NiCrMo3	54 HRC	Superficial hardening
Bushings	Fe 510	64 HRC	Tempering
Cylinders rams	C 45	-----	Chrome plated
Cylinder pipes	Fe 510	-----	Lapping
Screw & bolts	Min. Class 10.9	-----	Superficial hardening
Flexible pipes	SAE 100 R9/AT	-----	-----

- Welding process carried by certified personal (DNV – Bureau Veritas).
- Painting obtained by direct polyurethane topcoat.
- All components manufactured in house to grant step-by-step quality control.

Reduced part number:

The grapple with hydraulic rotator is made of 20 different parts only. This is a result of a deep **engineering effort**. Together with quality material and precision assembly, **simplicity is the key of a reliable product**.

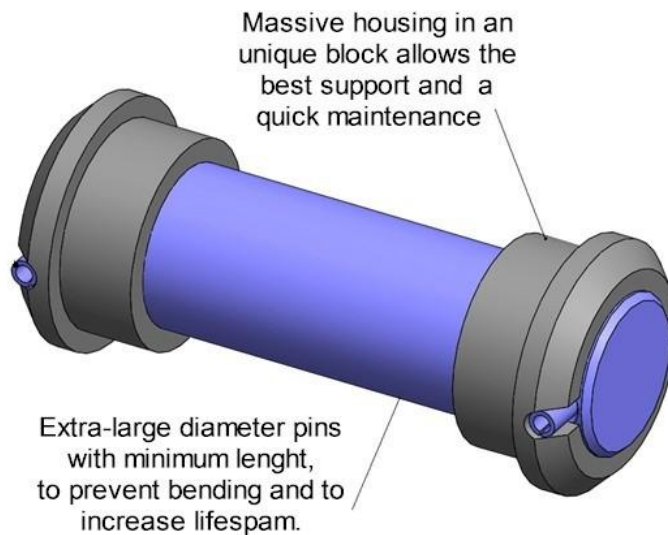


Simple design allows the grapple to be user-friendly: **maintenance can be carried out with a reduced number of tools.**

Other technical features:

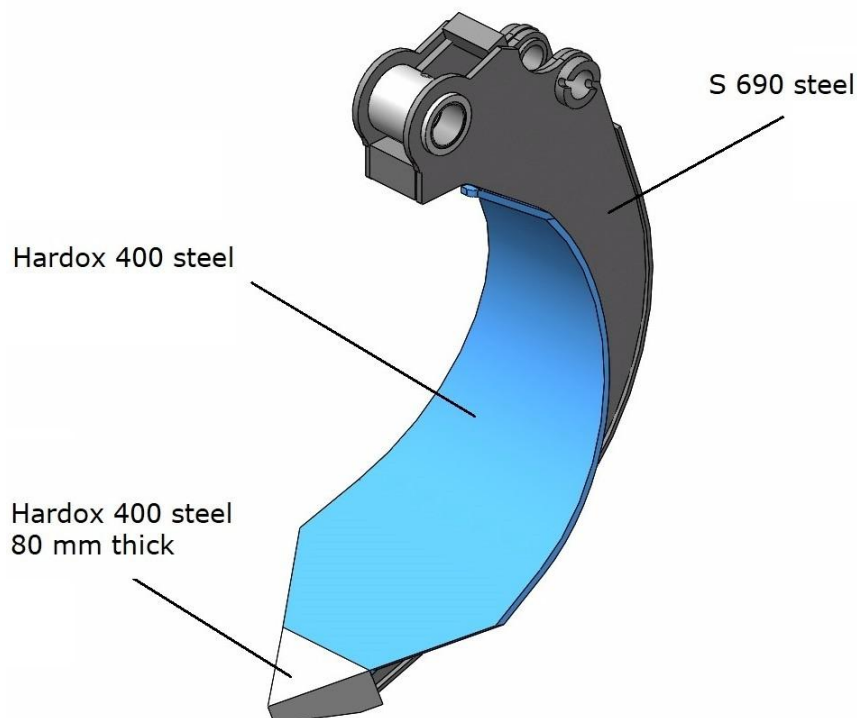
Shorter axes, with larger diameter:

Axes come with over-dimensioned diameter. Moreover, they have been made shorter. These factors avoid bending and increase durability.



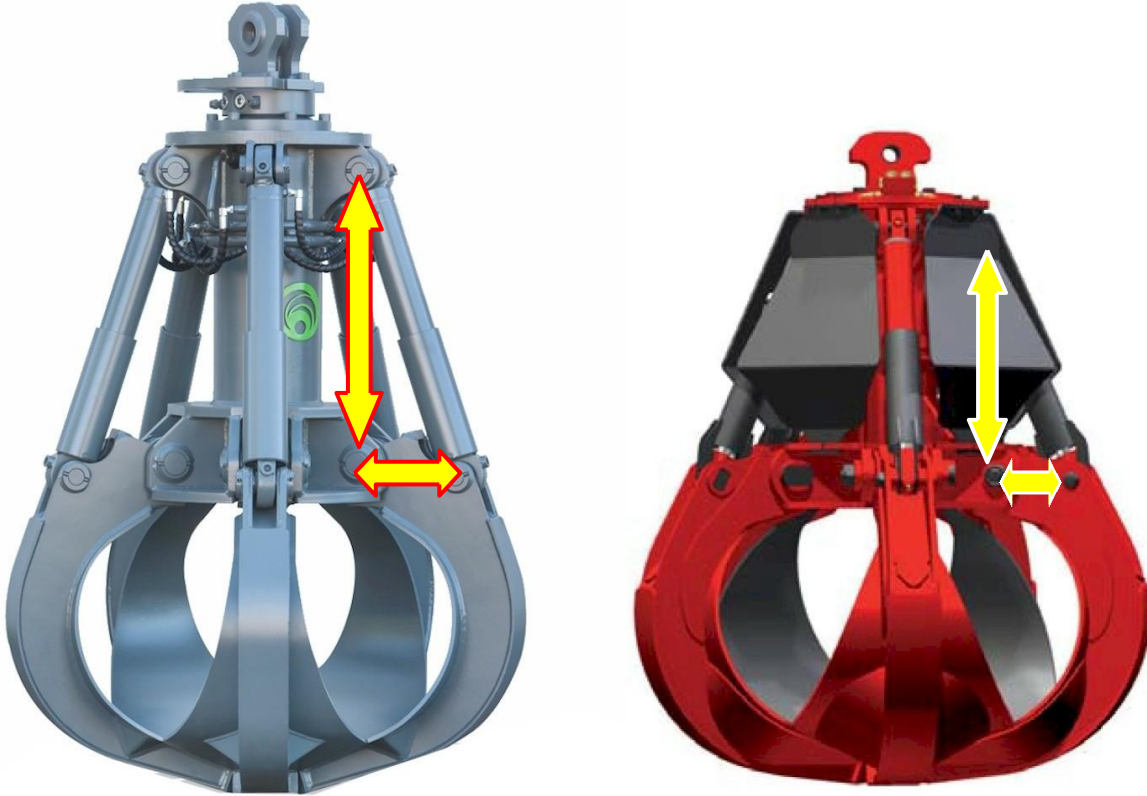
Tines construction:

Sturdy tines are made of the best materials available on the market:



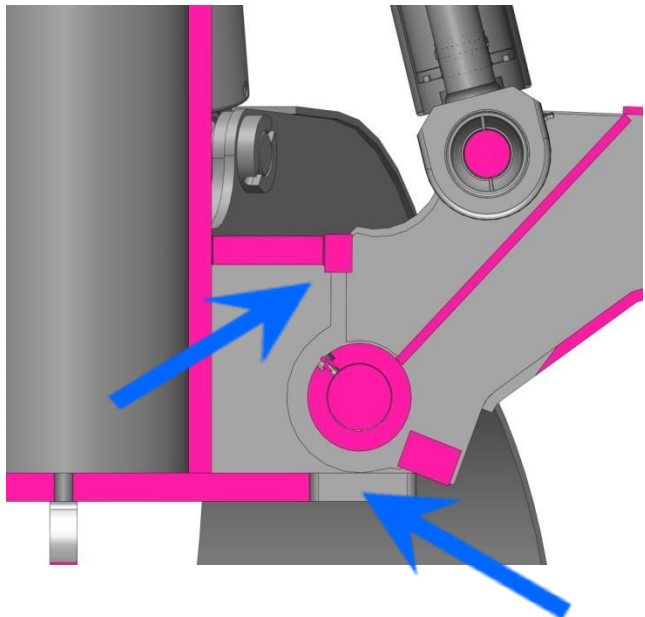
Higher closing power granted by longer leverages:

A better geometry allows more closing power without the need to increase the power of the cylinder, thereby producing less wear on pivot points.

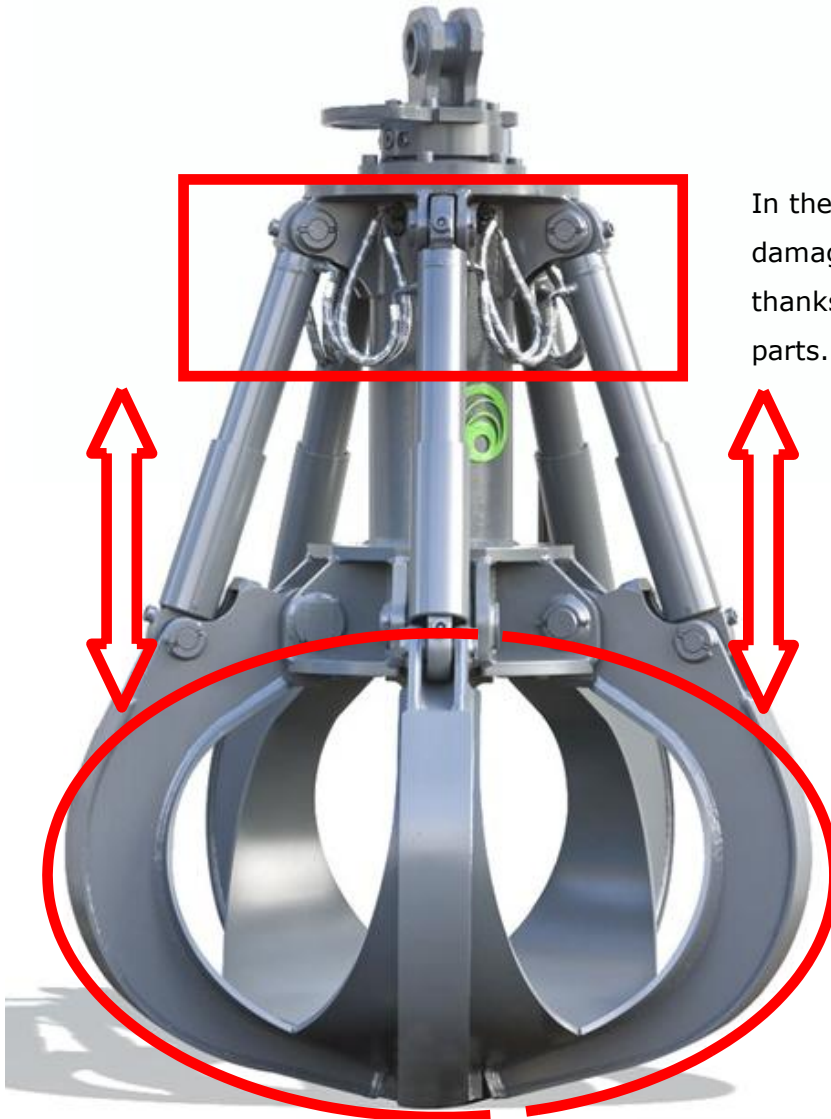


Structural end stops:

Smart design allows end stops to be part of the main components. This factor optimizes weight and drastically decreases the risk of deformation.

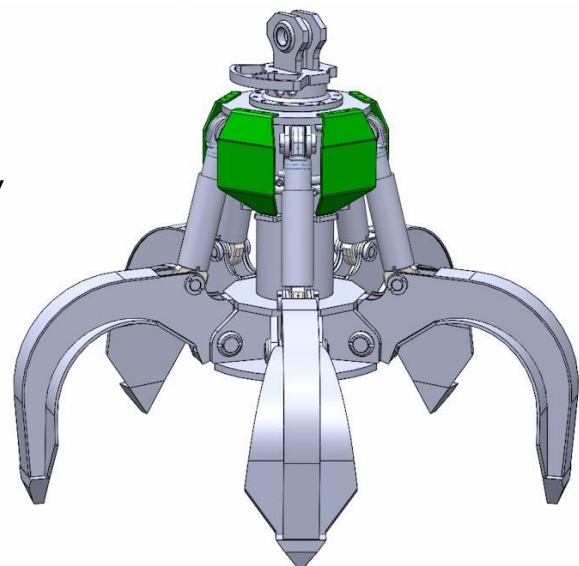


Hydraulic circuit is far away from material:



In the unlikely case that a hose line is damaged, replacement is very fast, thanks to easy accessibility to the parts.

...but for protections lovers,
bolt-on hose shields may
be requested as optional:



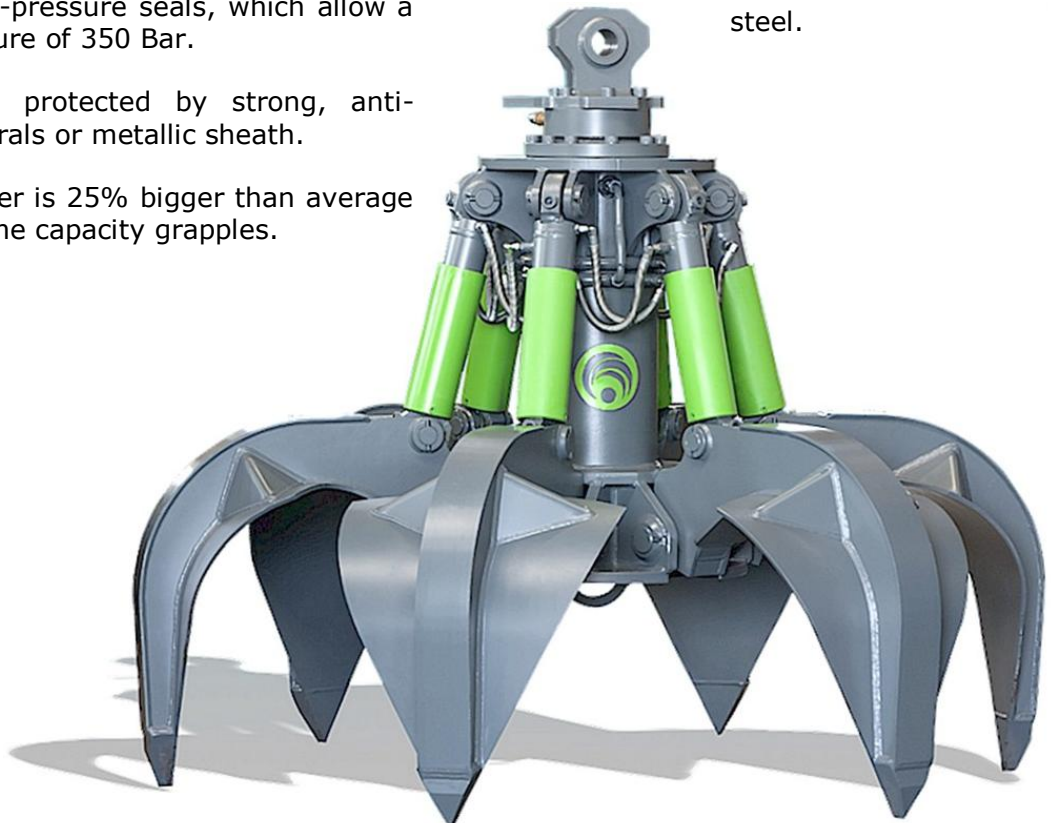
Optimized design:

The hydraulic cylinders reach maximum closing force at the end of movement, for the best grip and holding power on the grabbed material.

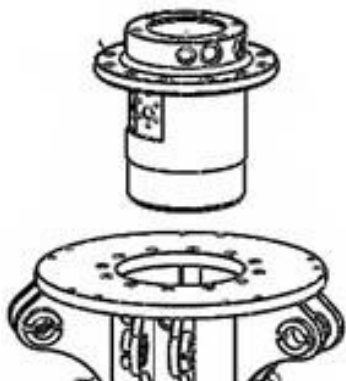
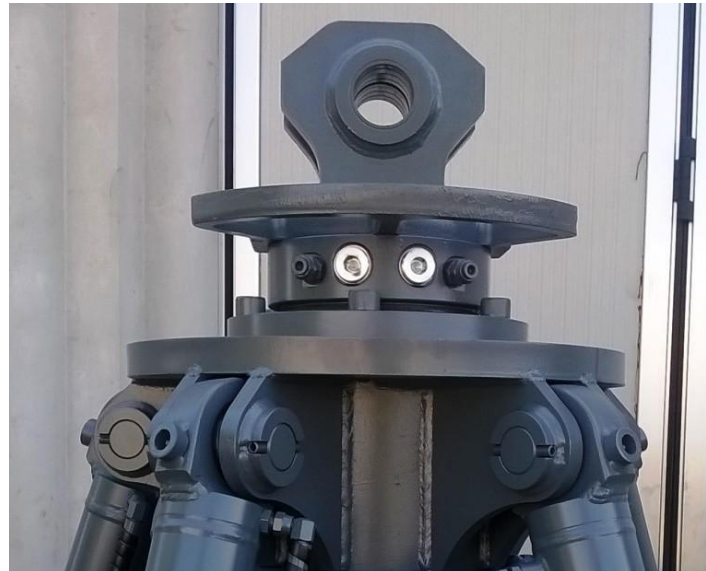


- Hydraulic cylinders are provided of brass/teflon high-pressure seals, which allow a max pressure of 350 Bar.
- Hoses are protected by strong, anti-scratch spirals or metallic sheath.
- Pin diameter is 25% bigger than average among same capacity grapples.

- Simple and linear structure realized with high-tensile strength steel Domex 690.
- Tines and wear parts are made of wear-resistant Hardox 400 steel.



HYDRAULIC ROTATOR (optional)



The hydraulic rotator is bolted into the main frame directly: there are no flanges or adapters. The grapple is very compact. No unnecessary hose lines are visible or in danger of being broken.

Compared to a slewing ring unit, this system is lighter and more user-friendly: maintenance is simple and spare parts quickly available.

Model	Application	Max load Ton.	Max BAR	Weight Kg.	Torque (150 Bar) Nm	Rec. Oil flow l/min.
GRI 10 T/P	Excavators 18/23 Ton – up to 600 lt	10	320	60	2000	35
GRI 15 T/P	Suitable for all excavators 18/30 Ton up to 800 lt capacity	15	320	70	2000	35
GRI 20 T/P	Only for excavators of 24 Ton and over Suggested for 1000 lt capacity *on demand	20	320	160	3000	35

Orange peel grapples PV line - Presentation



*Below:
PV 5/500*



*Above:
PV 6/650*

*Right:
PV 6/800*

