# **Hydraulic hammers**

### **HP** Series



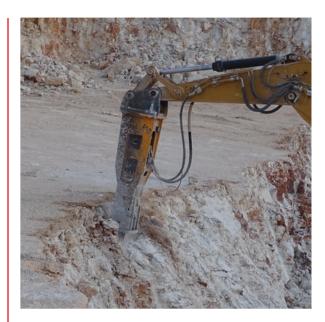




### Hydraulic hammers Indeco HP

Indeco HP hydraulic hammers are an outstanding expression of Italian high-tech and construction quality applied to demolition. In-depth research into hydraulic systems, materials, heat treatment and accessories have enabled Indeco to establish a reputation on markets throughout the world for product excellence.

With its many different models, divided into large, medium and small and available in various versions, Indeco has the widest range of hammers available anywhere in the world. This provides end-users with a huge choice, ensuring that they can find the ideal hammer/excavator match.





### **Small hammers**

Despite their compact size, Indeco's range of small hammers are exceptionally reliable, quiet and efficient, and best suited for such jobs as excavations work, highway maintenance, demolitions and recycling in city areas and building refurbishment. Their versatility makes them extremely efficient in specialist jobs such as maintenance in iron foundries.



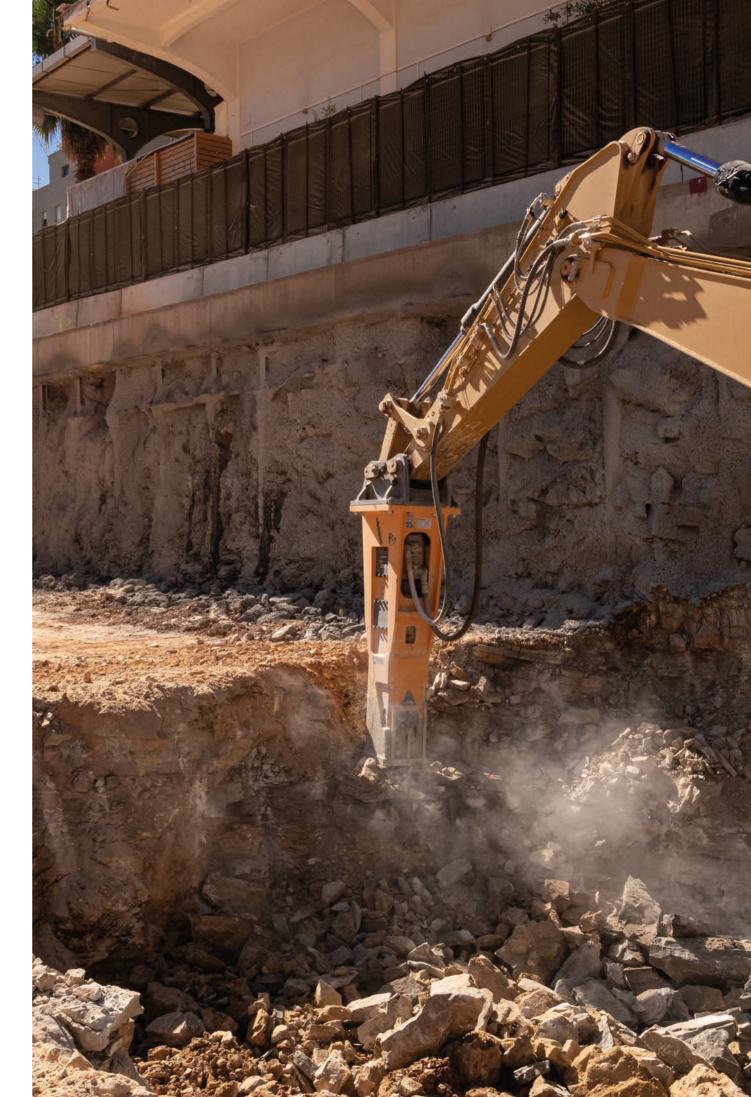
### **Medium hammers**

Their excellent weight/power ratio and their slimline structure make the mid-range Indeco hammers the ideal choice for classical applications, such as demolishing buildings, earthworks in inhabited areas and secondary demolitions in quarries, as well as for more specific tasks. In fact, mid-range hammers are used for underwater work (using a special kit) as well as for digging narrow deep trenches and removing casting slag from blast furnaces.



### Large hammers

Combining maximum power with the effectiveness of intelligent technology, Indeco's larger hammers are unbeatable when it comes to completing the toughest jobs in the shortest possible time-frame – whether it's the biggest demolition jobs, primary breaking in quarries, digging foundations, or excavating huge rail and road tunnels.



### Features of Indeco hammers

All Indeco hammers have a special intelligent hydraulic system 1, enabling them to automatically vary the energy and frequency of the blows according to the hardness of the material being demolished. This optimises the hydraulic pressure delivered by the machine, thus improving productivity and enhancing the overall performance. Exclusive features such as the synchronised internal distributor 2 aligned with the piston, the oil cushions 3 for vibration dampening and the short hydraulic flow pattern 4 make it possible to completely do away with seals in the distribution area, a decisive factor in extending the working life of the hammer and significantly reducing downtimes. The use of special low-alloy steels, exclusively manufactured according to Indeco's own formula greatly lengthen the average working life of the major hammer components.

The housing **[5]** is made out of extra-strength HARDOX<sup>®</sup> steel wear plates, which eliminate buckling.

The piston **|6|** is divided into two parts, for greater impact energy and lower operating costs. The centralised greasing system **|7|** enables the sliding parts to remain lubricated even when the hammer is operating horizontally, thus considerably reducing wear and tear on components and extending product lifetime.

The "quick change" interchangeable bushing **8** is available in various materials for different jobs; it is inserted into the lower tool bushing where the tool moves, and reduces maintenance times and costs, by cutting out the long machine downtimes needed to replace the traditional fixed bushing.

All carriers which mount Indeco hammers benefit from the Indeco dual shock-absorption system [9]: an internal hydraulic one and a mechanical one, located outside the body, which substantially reduce the vibrations transmitted to the excavator. The excavator boom is also subject to lower stress levels, as Indeco hammers are considerably lighter under working conditions than rival makes in the same class. Alongside the standard versions there is also a super-soundproofed Whisper version, whose body is lined internally with sound-absorbent material [10] and an "anti-rumble" paint, which – combined with a few modifications to the bushing – enable noise emission levels to be considerably reduced. By lowering pressure peaks, the rechargeable hydraulic/nitrogen accumulator [11] also reduces stress in the excavator hydraulic circuit, keeps the gas charge and energy per blow constant, and reduces maintenance and operating costs.

ABF<br/>technologyThe ABF (Anti Blank Firing) system12installed as standard on all of<br/>the medium- and large-range Indeco

hammers, cuts out blank fire by eliminating any down pressure from the hammer whenever the tool is not resting firmly on the surface to be demolished. This increases the service life of all components subject to wear and tear, as well as reducing stress to the hammer body and excavator arm.

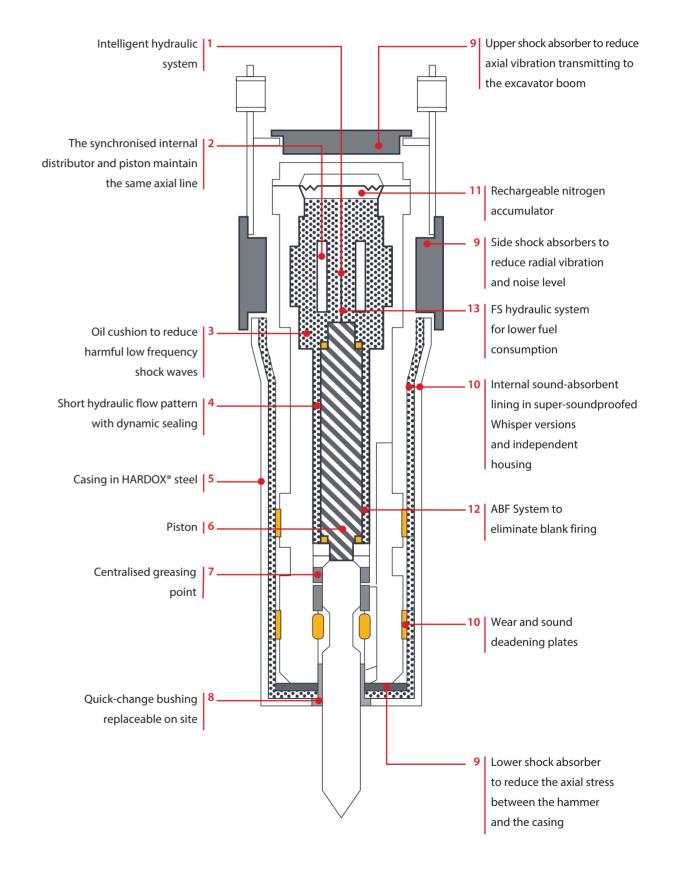


As well as being efficient and reliable, Indeco hydraulic hammers are now proving to be even more environmentally-friendly and low on

fuel consumption. With a now even more efficient hydraulic system [13], the HP series has now also become FS (Fuel Saving).

Compared to other manufacturers' models of equivalent weight and performance, Indeco hammers require less oil per minute and lower operating pressure. And as using lower hydraulic power means reducing the number of revolutions per minute on the carrier, they lead to fuel savings of up to 20%, while ensuring optimum performance and maximum productivity.

This becomes even more evident when comparing the Indeco hammer with gas or gas/oil powered products of similar size manufactured by competitors.



# Small hammer range **HP** series

These excellent jobsite companions are the most numerous class of models in the Indeco range.



Technical Data	HP 100 FS	HP 150 FS / HP 150 FS Heavy Duty	HP 200 FS	HP 400 FS
Type of carrier	1 2	1 2	1 2	1 2 3
Excavator weight (possible)	0,5 ÷ 2 tons	0,7 ÷ 3 tons	1,4 ÷ 5 tons	1,7 ÷ 6,5 tons
Weight of hammer	59 Kg	80 / 98 Kg (Heavy Duty)	160 Kg	230 Kg
Steel diameter	42 mm	45 mm	48 mm	65 mm
Pressure adjusted to the excavator	160 bars	160 bars	160 bars	160 bars
Back pressure max	16 bars	11 bars	11 bars	12 bars
Energy class per blow	160 joule	230 joule	300 joule	550 joule
Number of blows per minute	400 ÷ 1900 n/min	540 ÷ 2040 n/min	700 ÷ 1800 n/min	540 ÷ 1670 n/min

Carrier key



Tracked excavator

Miniloader Compact excavator

Backhoe loader

Wheeled excavator



HP 550 FS	HP 600 FS	HP 600 FS HP 700 FS	
1 2 3	1 2 3	1 3	1 3
3 ÷ 9 tons	3,5 ÷ 10,5 tons	4 ÷ 12 tons	5 ÷ 14 tons
320 Kg	390 Kg	440 Kg	550 Kg
75 mm	75 mm	80 mm	90 mm
160 bars	170 bars	170 bars	170 bars
12 bars	11 bars	12 bars	11 bars
750 joule	850 joule	950 joule	1200 joule
780 ÷ 1720 n/min	600 ÷1340 n/min	620 ÷ 1500 n/min	570 ÷ 1180 n/min

For data on the pressure adjusted to the hammer and on oil flow, please consult the "Parameters for selecting and adjusting the hammer" page.

N.B. All illustrations and numerical data in this catalog are purely indicative and subject to change at our discretion and without notice. We therefore reserve the right to modify them with a view to improving and continuously developing our product.

# Medium hammer range **HP** series

A perfect blend of power and agility characterises the mid range Indeco hammers, tireless partners even on the toughest of jobs.



Technical Data	HP 1200 FS	HP 1500 FS	HP 1800 FS
Type of carrier	1 3 4	4 5	4 5
Excavator weight (possible)	6,5 ÷ 16 tons	10 ÷ 20 tons	12 ÷ 22 tons
Weight of hammer when operated	650 Kg	850 Kg	1000 Kg
Steel diameter	90 mm	110 mm	115 mm
Pressure adjusted to the excavator	170 bars	180 bars	180 bars
Back pressure max	8,5 bars	10 bars	8 bars
Energy class per blow	1500 joule	1750 joule	2000 joule
Number of blows per minute	450 ÷ 980 n/min	420 ÷ 1000 n/min	440 ÷ 1060 n/min

Carrier key



Backhoe loader

Compact excavator

Miniloader

Wheeled excavator

Tracked excavator

HP 2000 FS	HP 2500 FS	HP 2750 FS	HP 3000 FS
4 5	4 5	5	5
15 ÷ 25 tons	16 ÷ 28 tons	16 ÷ 30 tons	19 ÷ 32 tons
1200 Kg	1500 Kg	1690 Kg	1900 Kg
120 mm	130 mm	135 mm	140 mm
180 bars	180 bars	190 bars	200 bars
8 bars	7 bars	7 bars	8 bars
2500 joule	3400 joule	3700 joule	4400 joule
460 ÷ 940 n/min	400 ÷ 870 n/min	400 ÷ 870 n/min	360 ÷ 870 n/mii

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# Large hammer range HP series

This is the most prestigious class, containing the top range of Indeco hammers. They are top hammers not only in terms of size, but also in their outstanding performance.



Technical Data	HP 3500 FS	HP 4000 FS	HP 5000 FS	HP 6000 FS
Type of carrier	5	5	5	5
Excavator weight (possible)	21 ÷ 38 tons	23 ÷ 42 tons	27 ÷ 50 tons	30 ÷ 55 tons
Weight of hammer when operated	2200 Kg	2500 Kg	3150 Kg	3600 Kg
Steel diameter	145 mm	150 mm	160 mm	170 mm
Pressure adjusted to the excavator	210 bars	210 bars	210 bars	210 bars
Back pressure max	7 bars	8 bars	7 bars	7 bars
Energy class per blow	5200 joule	6200 joule	8000 joule	9000 joule
Number of blows	370 ÷ 760 n/min	340 ÷ 820 n/min	300 ÷ 670 n/min	300 ÷ 650 n/min

Carrier key





Wheeled excavator



Tracked excavator

Compact excavator Miniloader

Backhoe loader

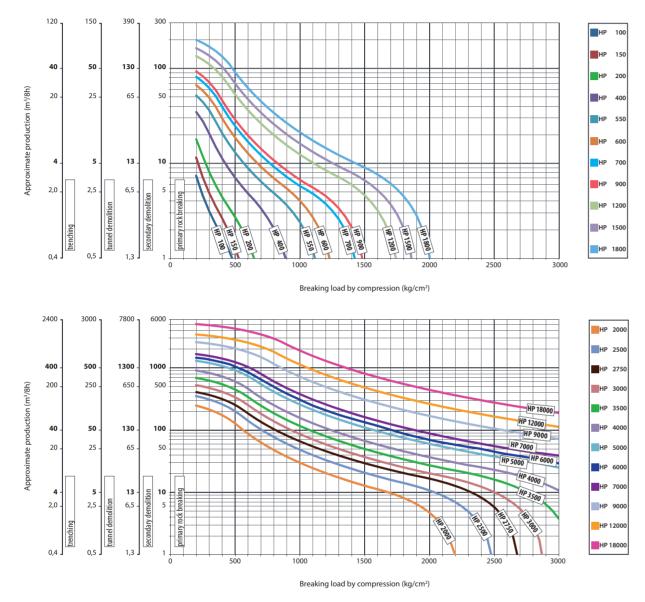


HP 9000 FS	HP 12000 FS	HP 18000 FS Plus	
5	5		
39 ÷ 80 tons	45 ÷ 120 tons	60 ÷ 140 tons	
5000 Kg	7800 Kg	11050 Kg	
195 mm	215 mm	250 mm	
210 bars	230 bars	230 bars	
8 bars	9 bars	11 bars	
15000 joule	20000 joule	25000 joule	
270 ÷ 540 n/min	240 ÷ 550 n/min	240 ÷ 460 n/min	
	5 39 ÷ 80 tons 5000 Kg 195 mm 210 bars 8 bars 15000 joule	5         5           39 ÷ 80 tons         45 ÷ 120 tons           5000 Kg         7800 Kg           195 mm         215 mm           210 bars         230 bars           8 bars         9 bars           15000 joule         20000 joule	

For data on the pressure adjusted to the hammer and on oil flow, please consult the "Parameters for selecting and adjusting the hammer" page.

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### **Productivity**



N.B. These nominal values are for reference purposes and are not binding

### **Noise levels**

#### Noise levels measured\* at various distances

Guaranteed noise level\* corresponding to EU Directive 2006/42/EC

Distance	10 m	15 m	20 m	25 m	30 m
HP model	96	92,5	90	88,1	86,5
HP Whisper model	93	89,5	87	85,1	83,5

HP model	126	
HP Whisper model	123	

### **Parameters for selecting** and adjusting the hammer

Model	Compatibility hammer/carrier (tons)*	Oil pressure adjustment (bars)/ oil flow (l/min)**
HP 100	0,5 2	<sup>105</sup> 115 120 <sup>125</sup>
	0,7 1,8 0,7 3	28 <b>20 15</b> 10
HP 150	0,8 2,5	<sup>105</sup> 115 120 <b>30</b> 20 15
HP 200	1,4 5	<sup>105</sup> <b>115 120</b> <sup>125</sup>
	2 4 1,7 6,5	45 35 25 $25$ $105$ 115 120 $125$
HP 400	2,5 5	65 <b>45 35</b> 30
HP 550	3 9	<sup>105</sup> <b>115 120</b> <sup>125</sup>
	3,5 7,5 3,5 10,5	105 <b>120 125</b> $130$
HP 600	4 8,5	80 <b>70 60</b> 50
HP 700	4 12	<sup>105</sup> <b>120 125</b> <sup>130</sup>
	5,5 10 5 14	90 80 70 $60$ $105$ 120 125 $130$
HP 900	6 12	100 <b>90 80</b> 70
HP 1200	6,5 16	<sup>105</sup> <b>120 125</b> <sup>130</sup> <b>105 95 85</b> 70
HP 1500	8 13 10 20	<sup>115</sup> <b>120 125</b> <sup>140</sup>
	12 17 12 22	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
HP 1800	14 20	120 125 130 <sup>120</sup> 110 85
HP 2000	15 25	<sup>115</sup> <b>125 130</b> <sup>140</sup> <b>150 135 125</b> 110

Model	Compatibility hammer/carrier (tons)*	Oil pressure adjustment (bars)/ oil flow (l/min)**
HP 2500	16 28 19 24	<sup>115</sup> <b>125 130</b> <sup>140</sup> 160 <sup>140</sup> <b>130</b> 125
HP 2750	16 30 20 26	<sup>120</sup> <b>130 135</b> <sup>145</sup> <b>145 135 1</b> 30 160 <b>145 135</b> 130
HP 3000	19     32       21     28	125 <b>135 140</b> 150 <b>135 140</b> 150 180 <b>170 160</b> 145
HP 3500	21 38 24 30	<sup>130</sup> <b>135 140</b> <sup>160</sup> <b>135 140</b> <sup>160</sup> <b>135 175</b> 160
HP 4000	23 42 26 33	<sup>130</sup> <b>140 145</b> <sup>160</sup> 230 <b>215 205</b> 180
HP 5000	27 50 30 40	<sup>130</sup> <b>140 145</b> <sup>160</sup> 265 <b>230 220</b> 190
HP 6000	30     55       35     45	<sup>130</sup> <b>140 145</b> <sup>160</sup> 280 <b>240 230</b> 200
HP 7000	32 63 36 52	<sup>140</sup> <b>145 150</b> <sup>165</sup> 305 <b>285 275</b> 250
HP 9000	39 80 46 68	<sup>140</sup> <b>150 155</b> <sup>165</sup> <b>355 325 315</b> 290
HP 12000	45 120 58 90	<sup>140</sup> <b>160 165</b> <sup>180</sup> 420 <sup>380</sup> <sup>370</sup> <sub>325</sub>
HP 18000	60 140 75 120	<sup>140</sup> <b>160 170</b> <sup>180</sup> 520 <b>470 460</b> 420

#### \*Suggested uses on machines with an overall weight (in tons):

Possible (match subject to approval by the Indeco dealer)

Optimal oil supply (l/min)

\*\*Pressure adjusted to the hammer (bars) relative to oil flow (l/min):

Optimum pressure adjusted to the hammer (in bars)

\*values expressed in dB (A)

Best

### Accessories

#### Indeconnect system

New remote monitoring system, based on the principles of the Internet of Things, to prevent equipment obsolescence and keep high performance. The **'Indeconnect' 11** system consists of a **device** equipped with 4G technology for a wireless connection to the network, to be mounted on the equipment, and a cloud-based **web platform** you can access from mobile devices (with an app) or from PC, that lets you view the data transmitted in real time by each installed device: working hours, working position in space, hydraulic oil temperature, ambient temperature, GPS position, and more. Through Indeconnect you can:

- Monitor productivity, making sure each Indeco tool is working as intended
- Check operations, verifying in real time the various internal and external parameters of the equipment to make sure that it is used in optimal conditions and correctly
- **Increase security,** by remotely checking the position of the equipment through GPS
- Plan maintenance, monitoring the health of each Indeco tool in real time, also through the automatic alert and messaging system that lets you order spare parts and reduce machine downtime to a minimum
- **Optimise rental**, by supervising and monitoring the management of rented equipment.

#### IDA (Indeco Dust Abatement) System

An innovative system that is particularly effective for reducing wear and tear on components, extending the working life of the hammer and protecting operators against exposure to microparticles of crystalline silica. It consists of a jet of high-pressure water spray, emitted by a number of nozzles [2] on the casing, which prevents dust from harming both the tool and the operator.

Recently updated to comply with the latest OSHA directives, the system is available in two different versions:







3

4



5







#### • High-pressure system

Available for medium-large to large hammers, it is made up of an air compressor and a high-pressure water pump, mounted onto the excavator and driven by two hydraulic motors powered by the excavator. A set of electrohydraulic valves enable the excavator operator to activate the pump and compressor independently, thus starting up either one or both of the protection devices: the dust-abatement kit, which uses a fine water spray and the dust shield, which uses the internal pressurization of the hammer **[3]** to prevent dust, water and debris from getting into the hammer through the bushing, as can occur during tunnel demolitions and underwater excavations.

#### • Low-pressure system

Designed for smaller hammers and pulverizers, the technology involves inserting a vaporizing plate with four nozzles **[4]**, where the mounting bracket is attached, which enables it to cover the whole working area (whatever position it is in) and reduce the amount of dust produced, even on windy days. The new system only needs a low-pressure water supply and the sprayers turn on automatically only when the attachment is in action, thus also reducing water consumption.

#### Anti-Grease and Anti-Dust System

This system, which is crucial when working in dusty environments and when tunnelling, is made up of two collars. Both are adherent to the tool [5], and which prevent dust from getting in and grease from getting out, improving lubrication levels and thus lengthening the working life of the main hammer components.

#### Indeco Lube automatic greasing systems

Among the most important accessories on hydraulic hammers, automatic greasing systems developed exclusively for Indeco by Bekalube technical staff are designed to keep hammers in perfect working order, by using just the right amount of lubricant and cutting out the down times needed for the operator to carry out manual greasing. There are two types of greasing unit – either an on-board system that can be fitted directly onto the hammer and which uses a cartridge pump, or else an excavator-mounted unit with its own grease tank [6]. In both cases, these systems are connected to the hammer through a single centralized greasing point [7], which enables the lubricant to reach all of the bushings and the moving parts at the tool, inside the hammers and on the retaining axle.

#### **On-Board greasing systems**

- "Small" Single-shot cartridge pump with only one hydraulic line [8], which accepts a single 250 or 400 g cartridge – for hammers from the HP 200 to the HP 1800
- "**Compact**" Pump with two hydraulic lines, which accepts a single 400 g cartridge [9] for hammers from the HP 2000 to the HP 7000
- "Maxi" cPump with two hydraulic lines, which accepts a dual 400 g + 400 g cartridge [10] – for hammers from the HP 9000 to the HP 18000

#### Carrier-mounted systems

- Five-litre hydraulically or electrically-operated tank
- 18/20 kg hydraulically or electrically-operated drum immersion pump

#### Special Indeco Sirio lubricant

It is vital that a specific lubricant be used, to ensure the durability of the main components of the hammer. Indeco's **111** Sirio HBS grease, with solid additives is particularly resistant to oxidation, can withstand extreme pressures and temperatures and shows excellent adhesion and water-resistance.

#### Pins and bushings

**12** Designed to make it easier to mount all Indeco products onto the excavator boom, with or without a mounting bracket.





10

11











#### Mounting brackets

Each Indeco mounting bracket model **13** can be used with all Indeco products in the same class.

#### Folding mounting bracket

A special mounting bracket **14** for folding the hammer away directly under the carrier boom.

#### **Connecting hoses**

We recommend using original Indeco high- and low-pressure hoses [15] to connect various tools to the hydraulic system on the carrier.

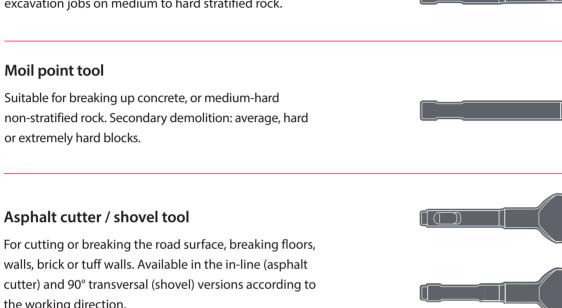
### The tools

#### **Chisel tool**

Moil point tool

or extremely hard blocks.

Suitable for all earthworking or narrow-section excavation jobs on medium to hard stratified rock.



#### Asphalt cutter / shovel tool

For cutting or breaking the road surface, breaking floors, walls, brick or tuff walls. Available in the in-line (asphalt cutter) and 90° transversal (shovel) versions according to the working direction.

#### **Pile driver**

Suitable for pilework or press-moulded supports for guardrails, etc.



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#### Pyramidal point

Suitable for demolishing hard reinforced concrete flooring, as well as sedimentary material.



#### **Cobra chisel tool**

Suitable for all types of excavation work on medium-hard to hard rock, non-stratified rock or rock which tends to pulverise when being broken up, puddingstones.



#### **Blunt tool**

Suitable for breaking up blocks of any hardness, or to reduce the size of rubble.



### **Application areas**

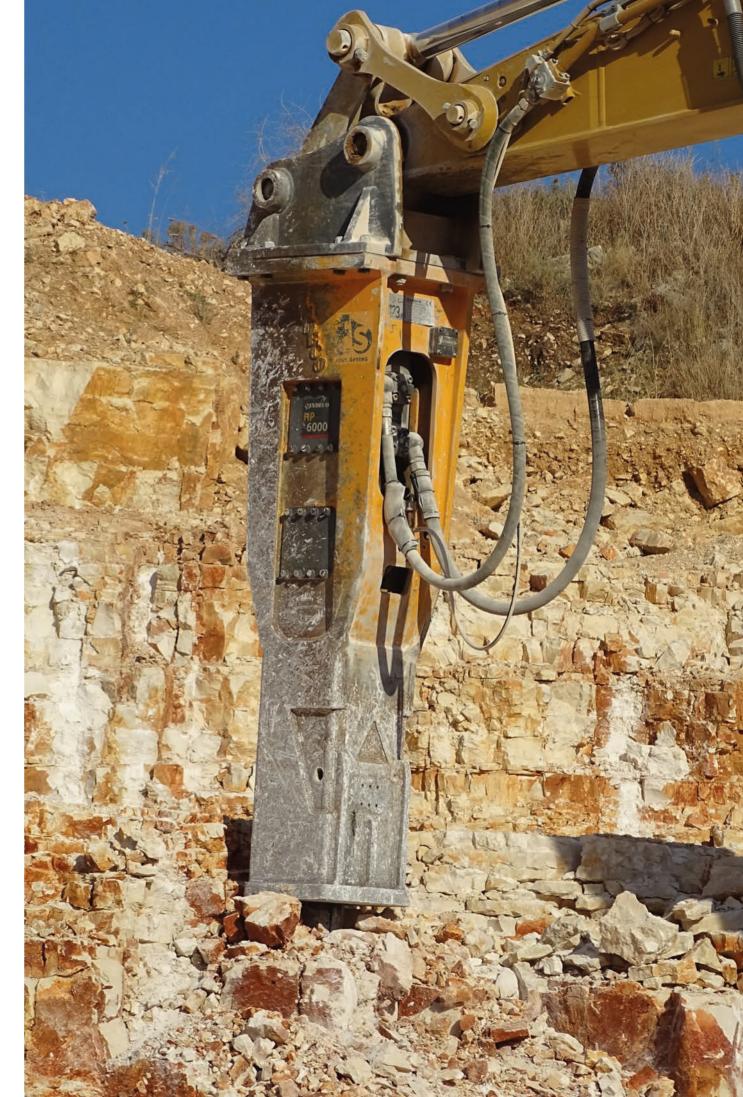
			L	М	S
	Preliminary works	Overburden removal	10	0	
		Bench, road & ramp leveling	0	0	
i.		Roof, face & rib scaling	0	0	
	Secondary demolition	Boulder reduction in rock pile	0	0	
	,	Removing blockages			
Mining		at crushing systems	0	0	0
and Quarry	Primary rock breaking	Selective rock breaking	0	0	
		Blastfree mining	0		
	Light Demolition	Demolition of masonry structures	0	0	0
	Light Demontion	Brickwork		0	0
EE A		Natural stone		0	0
		Renovation of interiors		<b>–</b>	0
		Autoclaved aerated concrete	0	0	0
Demolition	Demolition of	Primary demolition of lightweight and			
& renovation	non-reinforced concrete	standard concrete	0	0	0
	structures	Primary demolition of heavyweight concrete	0	0	0
		Wall Elements	0	0	0
		Secondary demolition	0	0	0
	Composite steel & concrete	<ul> <li>Primary demolition of lightweight and standard</li> </ul>		_	
	structure demolition	reinforced concrete		0	
		Primary demolition of heavyweight			
		steel - reinforced concrete	0	0	
		Secondary Demolition floors, slabs and beams	0	0	0
		<ul> <li>Separating rebars from pillars</li> </ul>			
		and struts			
		Fiber-reinforced concrete	0	0	0
		Cutting rebars and steel reinforcements			
	Demolition of metallic	Demolition of refineries			
	buildings and structures	Cutting of Metal and steel structures			
		Cutting steel girders/beams			
		Cutting reinforcements			
	Sorting and Loading	• Sorting			
		• Loading			
		Waste handling			
		Site clean-up			
	Pavement demolition	• Asphalt	0	0	0
		Concrete	0	0	0
		Composite surfaces	0	0	0
	Earth moving works	Trenching	0	0	0
	-	Ground excavation	0	0	0
		Floor leveling			
•••		Soil compaction			
Earth Moving and		Trench compaction			
Construction		Loading soil or bulk material			
construction	Foundation works	Building foundation excavation	0	0	
		Ground leveling	0	0	0
	Building construction	Foundation pile driving		0	0
		Compaction around pillars	1		
		· ·	1	1	1

L Large hammers

M Medium hammers

S Small hammers

			L	М	S
	Tunnelling	<ul> <li>Tunnel excavation</li> </ul>	10	0	0
		Roof, face & rib scaling	0	0	0
	Underwater application	Dredging	0	0	0
		Dock deepening & extension	0	0	0
Infrastructures		Canal deepening & extension	0	0	0
innastractares		Loading soil or bulk material			
		Handling rock or breakwaters			
	Trenching	Oil & gas, water & sewage		0	
		(deep trenching)	0		0
		Trenching		0	0
		Trench soil compaction		0	0
	Road construction	Pile driving and guard rail driving		0	0
		Asphalt repair			
		Maintenance work (driveways, sidewalks and			
		parking lots)			
		Block paving			
	Slag recycling	Boulder reduction in slag heaps	0	0	
		Removing blockages			
		at crushing systems	0	0	0
Metallurgical	Cleaning & debricking	• Ladles	0	0	0
		Converter mouths	0	0	0
industry		• Kilns	0	0	0
	Gardening	Fencing	0	0	0
	& Landscaping	Ground excavation	0	0	0
312		Rock breaking	0	0	0
		Pit planting	0	0	0
Agriculture		Stump splitting	0	0	0
and Forestry		Golf course maintenance			
and rolestry		Root and stump grinding			
		Hedgerow clearance and rejuvenation			
		Grinding of logging residues			
	Forestry	Timber log handling			
		Maintenance of green area,			
		small trees and brush			
		Creation and upkeep of woodland corridors			
		and firebreaks			
		Tree clearing			
		Vegetation clearing			
		Branch clearing			



### The full range of Indeco hammers

Hammer		Weight		Hamm	er Weig	Weight	
HP	100	59	Kg	HP 20	00 1200	Kg	
HP	150	80	Kg	HP 25	00 1500	Kg	
HP	150 Heavy Duty	98	Kg	HP 27	50 1690	Kg	
HP	200	160	Kg	HP 30	00 1900	Kg	
HP	400	230	Kg	HP 35	00 2200	Kg	
HP	550	320	Kg	HP 40	00 2500	Kg	
HP	600	390	Kg	HP 50	00 3150	Kg	
HP	700	440	Kg	HP 60	00 3600	Kg	
HP	900	550	Kg	HP 70	00 4000	Kg	
HP	1200	650	Kg	HP 90	00 5000	Kg	
HP	1500	850	Kg	HP 120	00 7800	Kg	
HP	1800	1000	Kg	HP 180	00 Plus 11050	Kg	



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