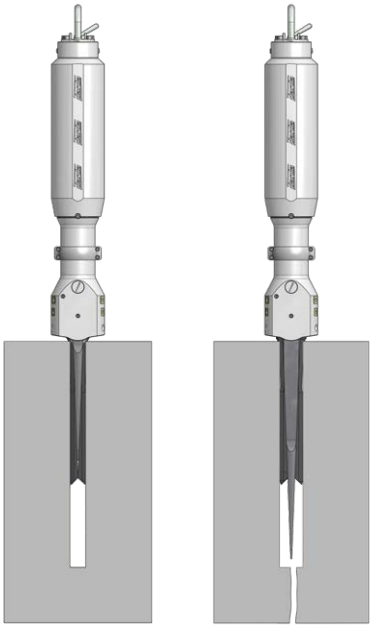
HANDHELD DEMOLITION EQUIPMENT

Rock and Concrete Splitters
Combi-Shears HCS8
Hydraulic Power Units

DEMOLITION TECHNOLOGY

ROCK AND CONCRETE SPLITTERS

Handheld splitting



Hydraulic Rock and Concrete Splitters replace blasting and conventional demolition methods. They break down concrete or rock without pressure waves, without vibrations and with very little noise and dust. They have also gained a firm foothold in block extraction in the natural stone industry. Since the invention and worldwide patenting by Helmut Darda in 1967, Darda Rock and Concrete Splitters have been used successfully in over 80 countries around the world. The superior quality, high performance and very long service life of Darda Rock and Concrete Splitters is unsurpassed.

Functional principle: Conventional mechanical methods destroy the structure of the material by external forces. However, rock and concrete can withstand very high compressive forces from the outside. By comparison, resistance towards forces acting from inside towards outside is relatively small. The development of the Darda Rock and Concrete Splitting Equipment was born from this fact.

They work according to the safe wedge principle: First, a hole is drilled with the appropriate depth and diameter, into which the wedge set of the splitting cylinder is then inserted and aligned to determine the splitting direction. Hydraulic pressure then pushes the wedge between the two counter wedges and presses them apart. The effective splitting force of up to 413 tons or 4048 kN destroys the structure of concrete and rock from the inside. A crack is formed in seconds. Smaller types of rebar in reinforced concrete break off.

Specifications | Rock and Concrete Splitters

Type	Wedge set	Required drill hole diameter[1]		Minimum drill depth		Splitting distance		Splitting force, theoretical		Splitting force, effective		Weight [3]		Length Splitting Cylinder		Length wedge set	
		mm	in	mm	in	mm	in	kN/t	lbs	kN/t	lbs	kg	lbs	mm	in	mm	in
C2S	N	31 - 32	1.22-1.26	270	10.6	9	0.35	3490/355	783000	1913/195	430000	17	37	745	29	140	5.5
C4E	N	35 - 36	1.38-1.42	430	16.9	10	0.39	4524/461	1017000	2256/230	507000	21	46	995	39	250	9.8
C4E	WL	35 - 38	1.38-1.5	540	21.3	14	0.55	3267/333	734000	1864/190	419000	22	49	1145	45	400	15.7
C9	N	45 - 48	1.77-1.89	410	16.1	18-53 [2]	0.7-2.1 [2]	2995/305	672000	1962/200	441000	22	49	1020	40	230	9.1
C9	L	48 - 50	1.89-1.97	580	22.8	18-53 [2]	0.7-2.1 [2]	2995/305	672000	1962/200	441000	23	51	1190	47	400	15.7
C10S	N	41 - 43	1.61-1.69	630	24.8	18	0.7	4945/504	1111000	2550/260	573000	33	73	1400	55	230	9.1
C10S	Jura	41 - 43	1.61-1.69	560	22	18	0.7	4052/413	911000	2158/220	485000	32	71	1340	53	380	15
C12	N	45 - 48	1.77-1.89	610	24	19-60 [2]	0.75-2.4 [2]	6061/618	1363000	3507/358	789000	31	68	1290	51	380	15
C12	L	45 - 48	1.77-1.89	680	26.8	15-44 [2]	0.6-1.7 [2]	8082/824	1817000	4048/413	911000	32	71	1360	54	450	17.7
C12	W	45 - 48	1.77-1.89	550	21.7	24-80 [2]	0.9-3.1 [2]	4849/494	1089000	3150/321	708000	31	68	1250	49	340	13.4

[1] Smallest diameter is most effectiv [2] With one enlarging counter wedge and one special enlarging counter wedge [3] Without hydraulic hoses

Facts

- Enormous splitting force up to 413 t (4048 kN)
- Nearly noise free
- Low dust and low vibration
- Splitting direction can be set
- Ideal for confined spaces
- Easy to use
- Easy to transport
- Splits in seconds
- Controlled demolition
- Can be used under water

Advantages

Economic efficiency
Blasting usually requires the use of barriers as well as other time-consuming and costly safety procedures. An effort that is no longer necessary with Darda Rock and Concrete Splitters, because they do not cause flyrock or similar dangerous situations. Other work can therefore continue in parallel.

Safety
Darda Hydraulic Rock and Concrete Splitters are absolutely safe: no uncontrolled release of forces, flyrock, vibrations or even explosion pressure. Costly safety procedures, which are necessary when demolishing with conventional methods, are no longer necessary.

Environmental friendliness
No vibrations or dust are generated during hydraulic splitting; Darda Rock and Concrete Splitters operate practically without noise. There is no environmental impact. With the Darda Rock and Concrete Splitting Equipment, demolition work can be carried out without disruptions even in densely populated areas or enclosed spaces.

Rugged design
The extremely sturdy design of the Darda Rock and Concrete Splitters guarantees a very long service life even under the toughest operating conditions. Only minimal mainten-ance work is required.

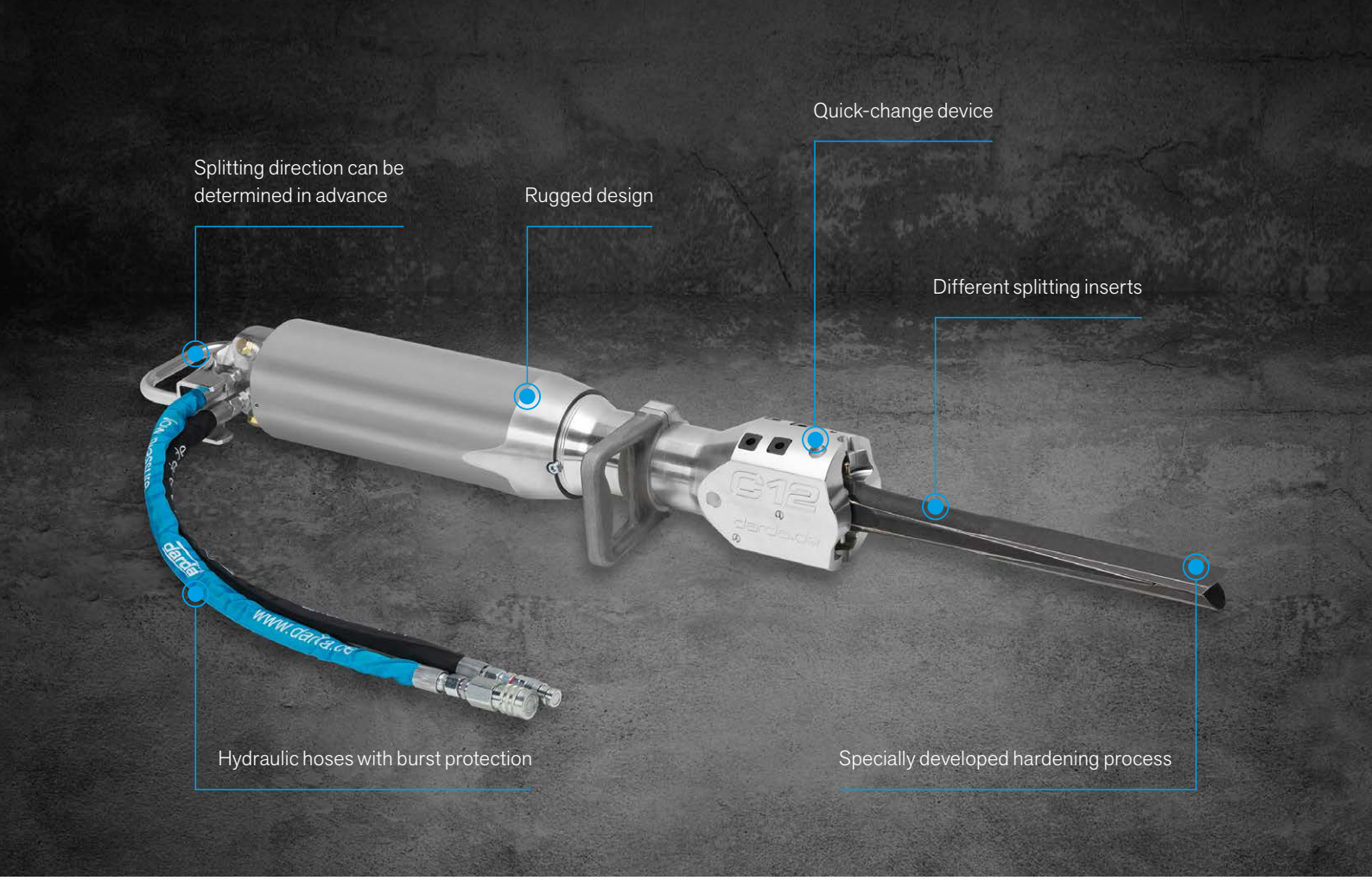
Flexibility
Darda‘s Hydraulic Splitters are completely independent of carrier equipment such as excavators. The Splitters and Hydraulic Units are easy to transport. Their use is therefore possible even in difficult to access places.

Easy handling
The equipment is user-friendly and can be operated easily by just one person.

Exact working
In contrast to most conventional methods, Darda Rock and Concrete Splitters make it possible to work very accurately: the splitting direction and splitting course can be set in advance, making it possible to fix the splitting quantity. Material that is not meant to be split off is spared. This makes the Splitters also ideally suited for block quarrying in quarries.

HYDR. SPLITTER ORIGINAL MADE IN GERMANY

Darda – the inventor of the Hydraulic Rock and Concrete Splitter.



THE PERFECT SOLUTION FOR EVERY OPERATING CONDITION

C2S

C4E

C9

C10S

C12

Possibilities of use

Different splitter models are available for a wide range of applications:

Splitter models	C2S	C4E	C9	C10S	C12
Demolition of concrete and reinforced concrete					
Splitting unreinforced and lightly reinforced concrete			●	○	●
Splitting reinforced concrete			○		●
Splitting in closed rooms and poorly accessible places			●		○
Splitting in confined spaces			●		○
Splitting walls and masonry			●		●
Splitting piles heads			○		●
Chimney demolition			●		○
Secondary splitting of large concrete pieces (pre-splitting for recycling plants)			●		○
Underwater demolition			●	○	○
Demolition of rock and natural stone					
Rock splitting (e.g. in trench work)			○	○	●
Secondary splitting of boulders	○	●	●	○	●
Tunnel-driving work		●	●	○	●
Expansion work in underground mining	○	●	●	○	●
Secondary splitting	○	●	○	○	○
Press pipe jacking	●	●	●		
Block quarrying in the natural stone industry					
Marble		●		●	
Granite	○	●		●	●
Sandstone			●	●	

● Highly suitable ○ Suitable

Application fields

Demolition of concrete and reinforced concrete

Demolition of rock and natural stone

Block quarrying in the natural stone industry

Tunneling

ROCK AND CONCRETE SPLITTERS

Models and Accessories

A complete Rock and Concrete Splitter consists of three components:

Hydraulic Splitter
The Hydraulic Splitter consists of a control valve, cylinder, front head, and wedge set (one wedge and two counter wedges). The entire Hydraulic Splitter is made of the highest quality aluminum and steel materials to ensure maximum load-bearing capacity and low weight. In a specially developed and complex hardening process, the counter wedges also receive a carbide layer. This makes it possible to transmit the very high forces.

Hydraulic Power Unit
An electric, air, diesel or petrol engine powers a high-pressure hydraulic pump. A pressure relief valve limits the system pressure to 50 MPa. Both wheeled and portable units are available. Depending on the model, up to five Splitters can be operated in parallel.

Hydraulic hoses
Rugged multi-layer hoses connect the Splitters to the Hydraulic Power Unit.

Accessories

Enlarging counter wedges
In order to enlarge the resulting crack, the standard counter wedges can be quickly and easily replaced with enlarging counter wedges. After expansion, particularly strong reinforcement can be broken off easily.

Pressure shells
In a drill hole with narrow diameter, the high splitting force acts on a very small surface area. This results in extremely high surface pressure. In case of heavily reinforced concrete, the concrete may sometimes compact during splitting and only an oval drill hole is created. Only short cracks form around the hole. The rebars do not tear off. Two thick, large pressure shells provide the solution. They are inserted into a core bore of Ø 100 mm | 4 inch and enclose a wedge set of the splitter. They are also often used in poor quality concrete.

Special Lubricant
During the splitting process, very high forces act on the wedge set. In order to reduce wear, the pressure surfaces of the wedge and the counter wedges must be lubricated regularly. In a long development and test phase, Darda Special Lubricant was proven to significantly reduce the high friction forces and guarantees maximum utilization of the splitting force.

Typical applications | Possibilities of use

Application films

COMBI-SHEARS HCS8

Cutting, breaking, expanding – all hydraulically

The hand-held, Hydraulic Combi-Shears HCS8 are equipped with the latest cutter and gripper technology and are particularly suitable for coring buildings. They are also well suited for a variety of other applications. One person can easily handle the compact and light-weight device. The powerful Combi-Shears are fast and very productive. They produce no dust, no vibrations and very little noise. This also makes their indoor use safe and reliable.

Type	Cutting force		Breaking force		Separating force		Jaw opening		Jaw depth		Weight		Length [4]	
	kN/t	lbf	kN/t	lbf	kN/t	lbf	mm	in	mm	in	kg	lb	mm	in
HCS8 J Concrete Jaw			86/8,8	19334			170	7	100	4	17	37	715	28
HCS8 B Brick Jaw			41/4,2	9217	27/2,8	6070	320	13	105	4	16	35	795	31
HCS8 S Sickle Blade [3]	267/27,2	60024					90	4	80	3	15	33	660	26
HCS8 C Shear [1]	267/27,2	60024			70/7	15726	250 [2]	9 7/8 [2]			15	33	720	28

[1] Cutting capacity:
- ● Ø 16 mm | 0.6 in
- L 40 x 40 x 4 mm | 1.6 x 1.6 x 0.2 in
- ○ Ø 40 x 2 mm | 1.6 x 0.1 in

[2] Jaw opening "expanding"

[3] Cutting capacity:
- ○ Ø 60 x 1.5 mm | 2.4 x 0.1 in
- L 80 x 80 x 3 mm | 3.1 x 3.1 x 0.1 in

[4] Without hydraulic hoses

The solution for many tasks

The HCS8 basic model is available with four different types of inserts.

Concrete Jaw | HCS8 J
The HCS8 J concrete jaw can be used to dismantle concrete walls up to 15 cm | 6 inch thickness (depending on the compressive strength of the concrete). Useful for demolition of thin partition walls, facade panels or in the renovation of prefabricated buildings.

Brick Jaw | HCS8 B
Equipped with the brick jaw set, the HCS8 B can break through walls up to 32 cm | 12 inch thickness. It replaces the conventional sledgehammer and is much more efficient and user-friendly due to its hydraulic mode of operation.

Sickle Blade | HCS8 S
Equipped with the sickle blade set, the HCS8 S is able to cut pipes, round materials, disconnected power cables and profiles made of sheet metal or wood. The sickle blades are designed to hold the material to be cut and to prevent slippage.

Shear and Expander | HCS8 C
The HCS8 C version is specially designed to expand and separate material. Radiators can be pushed out from the wall, door frames can be broken out, and splitted concrete pieces can be separated. In addition to steel reinforcements up to 16 mm | 5/8 inch, the HCS8 C also cuts a wide variety of construction materials.

Typical applications | Possibilities of use

Application films

Facts

- Bites through concrete and masonry with accuracy
- Cuts metal, cable, wood, sheet metal, rebar etc.
- Breaks up a wide variety of building materials
- Versatile uses, e.g. for gutting buildings
- Vibration-free
- Nearly dust and noise free
- Easy-to-handle and lightweight

HYDRAULIC POWER UNITS

The reliable companions

Specifications | Hydraulic Power Units

Type	Power system	Weight		Length		Width		Height		Flow rate Low-pressure stage		Flow rate High-pressure stage		Filling capacity, oil tank		L_{WA}	Operating pressure High-pressure stage
		kg	lb	mm	in	mm	in	mm	in	l/min	gal/min	l/min	gal/min	l	gal	dB	MPa
AP3	Compressed air [1]	42	93	600	24	398	16	426	17	5,0	1.3	1,6	0.4	5,0	1.3	92	50
BP2	Gasoline	45	99	600	24	398	16	426	17	5,0	1.3	1,6	0.4	5,0	1.3	101	50
EP2	Electric [2] 110 V	50	110	600	24	398	16	426	17	5,0	1.3	1,6	0.4	5,0	1.3	92	50
EP3	Electric [2] 230 V/400 V [3]	55	122	625	24.6	398	16	430	17	5,0	1.3	1,6	0.4	5,0	1.3	92	50
D4	Diesel	137	302	1180	46	720	28	730	29	-	-	5,4	1.4	10,0	2.6	-	50
D4 E	Diesel [4]	156	344	1180	46	720	28	730	29	-	-	5,4	1.4	10,0	2.6	-	50

[1] Max. 0.7 Mpa (7 bar), air consumption 47 - 195 m^3/h [2] 50 Hz [3] Connection for 230V and 400V plugs with selector switch [4] with electric starter

Specifications | Power systems | Power Units

AP3 | Air motor	BP2 | Gasoline engine
Max. 0.7 Mpa (7 bar), air consumption 47 - 195 m^3/h	Gasoline E10 unleaded, 91 Octane (ROZ)
· Maintenance unit consisting of compressed air filter with automatic oil nebulizer · Restart protection (after a drop in air pressure the motor does not start again automatically) · Silencer · Rugged air motor · Ball valve with DN 20 claw coupling · Manifold for up to 3 device connections mounted	· Honda gasoline engine (professional) · Complies with CARB/EPA environmental and occupational health and safety guidelines · The carburetor can be easily modified for continuous operation at altitudes above 1500 m · Manifold for up to 3 device connections mounted

EP2 I EP3 I Electric motor	D4 | Diesel engine
110 V, 16.1 A, 1~, 50 Hz, plug CEE 16 A 230 V, 8.75 A, 1~, 50 Hz, plug CEE 16 A	Diesel engine 3 - 7.5 kW Max. torque: 24.9 Nm
· Thermal motor protection (overheating protection for the motor) · Undervoltage release (the motor does not restart automatically after a power failure) · Plug with phase inverter (to change the direction of motor rotation) · Suitable for indoor use · Manifold for up to 3 device connections mounted	· Exhaust gas limit value certified according to EU 2016/1628 Stage 5 · Rugged Hatz brand engine with worldwide support · Very rugged and tilt resistant steel frame · Side mounting for transport of Splitters · Ideal for daily use in natural stone quarrying · Manifold for up to 5 device connections optional

General information on portable Power Units

- Two-stage pump (low pressure and high pressure)
- Oil filter in return line
- Oil filler neck with sieve
- Mobile due to transport wheels and extendable handle bar
- Manifold block with pressure gage
- Oil level indicator with temperature display
- Connection of three devices possible
- Possibility of securing against start-up by third parties (accident prevention)
- Complies with Directive 2000/14/EC (noise emission)

Accessories

Safety box (GFCI ground fault circuit interrupter)

Quick couplings

Our Hydraulic Power Packs are available in four different power systems.

Application films

AP3 | Air motor

BP2 | Gasoline engine

EP3 | Electric motor

D4 E | Diesel engine

With the exception of the mobile diesel version, the basic model is identical for all portable units. All variants are equipped with the latest, perfected technology and upgraded with convenient and profitable details.

All Darda Splitters and Combi-Shears can be combined with any of the four available power systems.

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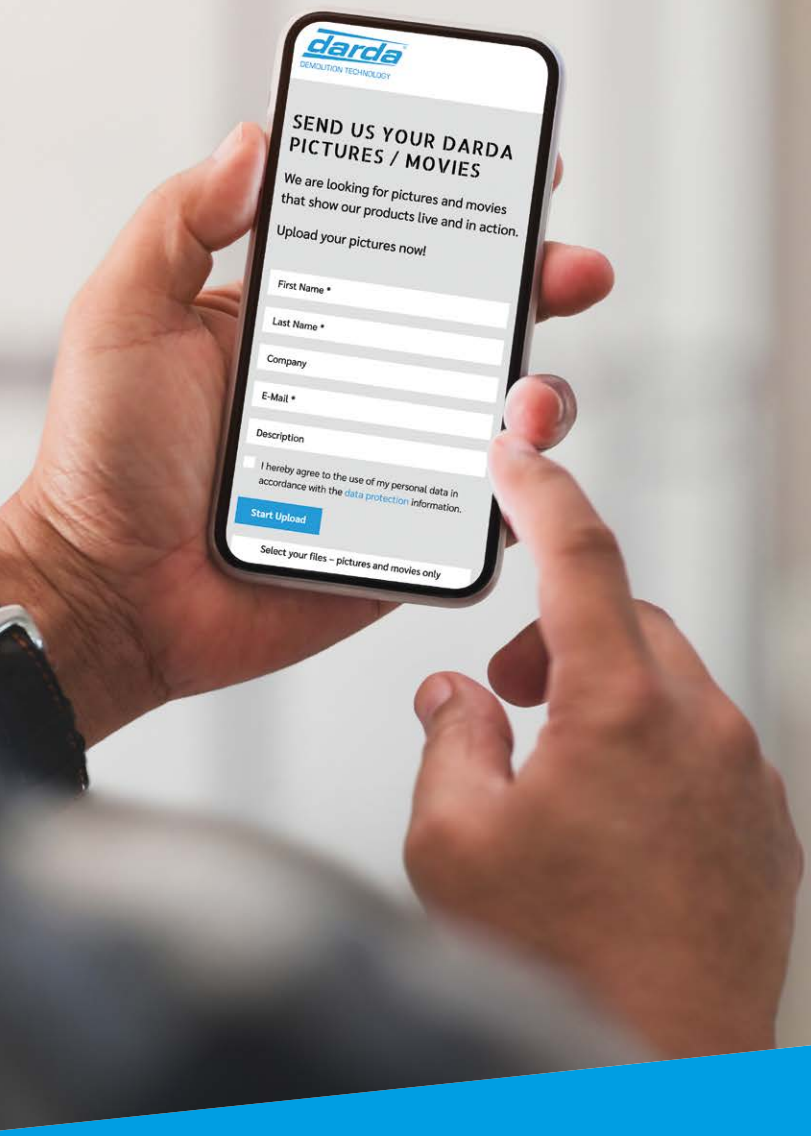

UPLOAD TOOL

We are looking for pictures and movies that show our products live and in action.

See how our hydraulic Rock and Concrete Splitter splits a huge rock or how our Concrete Crusher with its enormous breaking and cutting force is demolishing a concrete wall. We give this moment to everyone. That's why we are delighted to see all the pictures/movies in which our Darda products are shown.

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