POWERTOOLS

Hydraulics

When you need super-power

The *Lean production* concept arose from Toyota's philosophy of reducing waste in a process. Now it has expanded to become a natural part of all successful industry. The basic idea is that work should flow smoothly but that large stockholdings should be avoided. The methods set increasingly high requirements on both efficiency and flexibility – not least in machine stock.

This is something we have taken into the design of our products in high-pressure hydraulics. Their perfect balance between power and precision makes them safe and easy to operate.

Index

POWERTOOLS
HYDRAULICS

A large strong family

Our wide range of high-pressure hydraulics provides you quickly and simply with enormous power, ingeniously packaged in compact, easily-handled tools with optimum power/weight, safety, and strength properties – perfect for production and maintenance in industrial and construction applications.

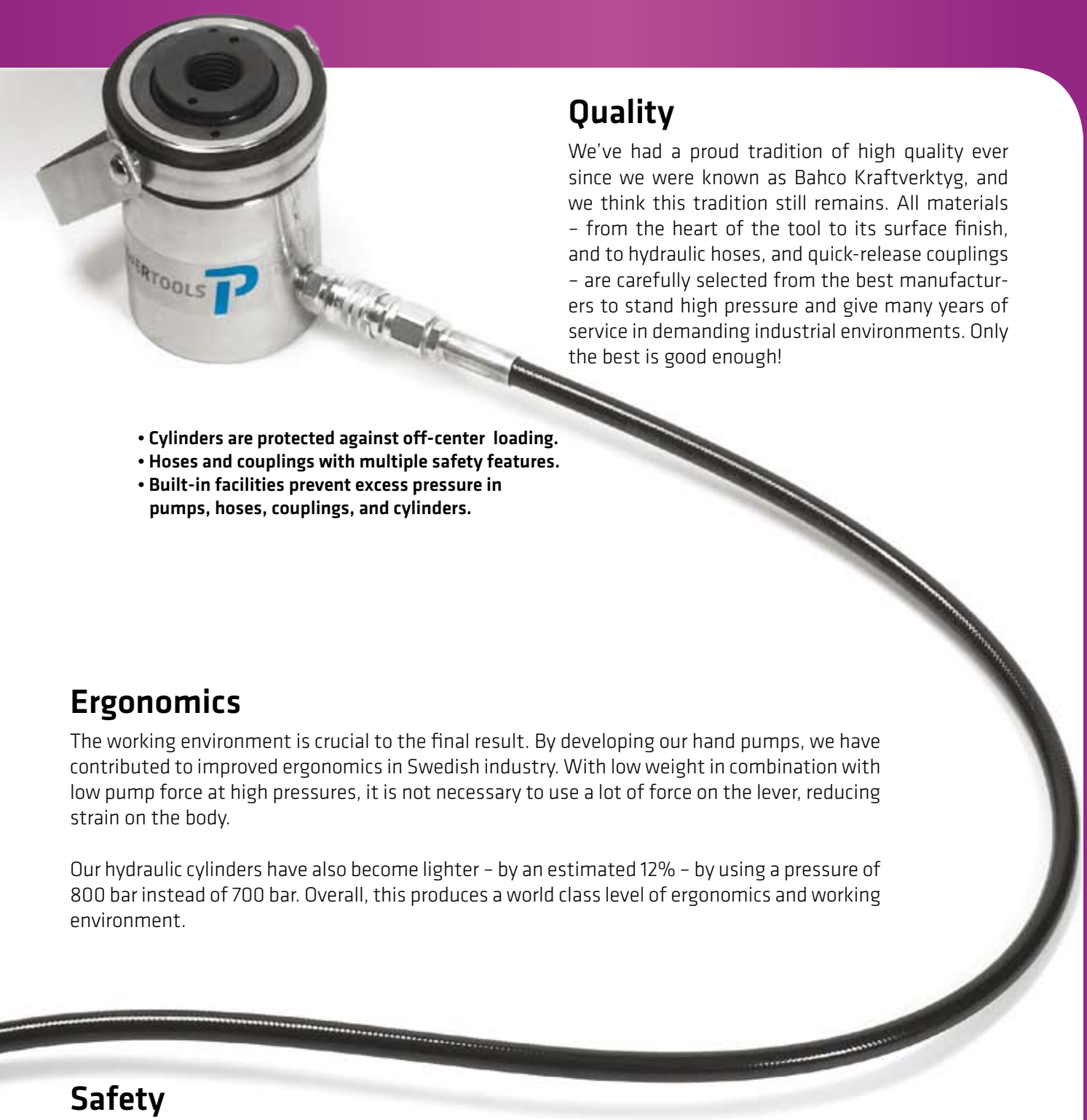
Didn't you ever wish you had supernatural strength? For many it is only an unreachable dream, not least for those who obstinately try to carry out heavy industrial tasks with limited human muscle-power. Quite often, the result is aches and pains, risky emergency solutions, and a general feeling of inadequacy.

This is a pity, especially as it's so easy to get hold of the right kind of super-power completely naturally. Power which – in combination with unmatched precision – can save you from so many problems in the workplace and also save you money. An integrated, high-performance tool-store can also generate significant advantages in co-ordination, as well as increasing profitability.

It doesn't matter whether you want to push, lift, pull apart, cut off, or tighten, you'll find exactly the right tool for the job in our range. And if by any chance you can't, we'll be happy to provide you with a tailored solution to meet your exact requirements.

Quality

We've had a proud tradition of high quality ever since we were known as Bahco Kraftverktyg, and we think this tradition still remains. All materials – from the heart of the tool to its surface finish, and to hydraulic hoses, and quick-release couplings – are carefully selected from the best manufacturers to stand high pressure and give many years of service in demanding industrial environments. Only the best is good enough!



- **Cylinders are protected against off-center loading.**
- **Hoses and couplings with multiple safety features.**
- **Built-in facilities prevent excess pressure in pumps, hoses, couplings, and cylinders.**

Ergonomics

The working environment is crucial to the final result. By developing our hand pumps, we have contributed to improved ergonomics in Swedish industry. With low weight in combination with low pump force at high pressures, it is not necessary to use a lot of force on the lever, reducing strain on the body.

Our hydraulic cylinders have also become lighter – by an estimated 12% – by using a pressure of 800 bar instead of 700 bar. Overall, this produces a world class level of ergonomics and working environment.

Safety

Powertools hydraulics work at high pressure and large forces. The requirement for a high level of safety is therefore of the greatest importance, and is obviously our starting point. Safe solutions and high quality go hand in hand, and you can feel safe when you use our products.

If you choose Powertools, you can be sure you've chosen a reliable work partner that will never fail. All our tools are designed to stand tough jobs and massive challenges. **NOTE: do remember however never to exceed the stated maximum working pressure.**

- **Hand pumps with low pumping force and an optimum power-to-weight ratio.**

Power and precision

Hydraulics offers us the ability to transform very small forces, provided manually or by motors, into a powerful drive for a tool which may be lifting force from a cylinder, or shearing force from a cutter. Forces of hundreds of tons are not unusual.

But power without precision is not much use. Our tools are often used for work in restricted spaces, or in sensitive industrial applications where it is absolutely necessary to have the margins on your side.

We therefore make a point of compressing and restraining forces optimally, so that they can exert their maximum effect while the design of the tool keeps them in exactly the right place. Many of our tools can even handle off-centre forces.

Why 800 bar?

Most of our cylinders have a maximum working pressure of 800 bar, contrasting with many competing systems that use only 700 bar. By choosing a higher hydraulic pressure, dimensions can be reduced, and the combination of small size and low weight is optimum at 800 bar.

A working pressure of 800 instead of 700 bar gives the following advantages:

- **Smaller size for the same lifting capacity, which means a lighter cylinder.**
- **Higher capacity for the same size.**

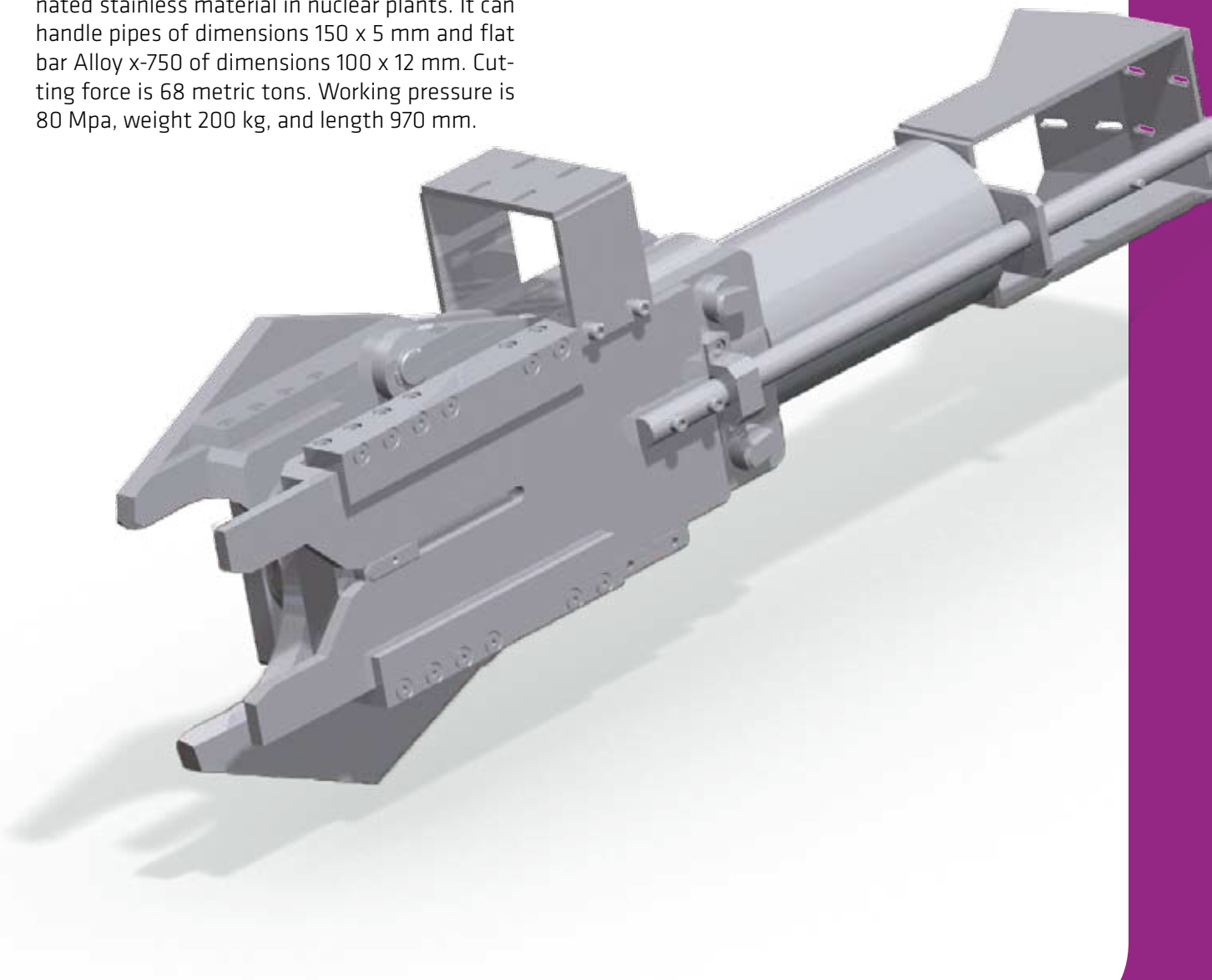
Specially-adapted hydraulics

If you can't find what you're looking for in our range, we'll be happy to help you with various special solutions. We plan, construct and manufacture for both small and large power demands, and are happy to be present from the outset, so that we can get on the right track right away.

Close collaboration throughout the production process guarantees the right final design. You therefore get direct contact with our designers, so that they can absorb your opinions and consult you. In addition to delivery testing, we handle tests and test running as well as assisting during installation and commissioning.

Example of a tailored special solution

A special cutter adapted to remove contaminated stainless material in nuclear plants. It can handle pipes of dimensions 150 x 5 mm and flat bar Alloy x-750 of dimensions 100 x 12 mm. Cutting force is 68 metric tons. Working pressure is 80 Mpa, weight 200 kg, and length 970 mm.



POWERTOOLS
HYDRAULICS

CRF
13–100 ton

Stainless cylinders:

Your servants whatever the weather

There is no such thing as bad weather, only bad clothing! So we like to make sure that our CRF series is properly dressed. This stainless cylinder performs outstandingly well in most conditions, but is especially suited to damp environments – it's even able to work underwater, because the stainless inner surface prevents the seals being damaged by rusty cylinder walls.

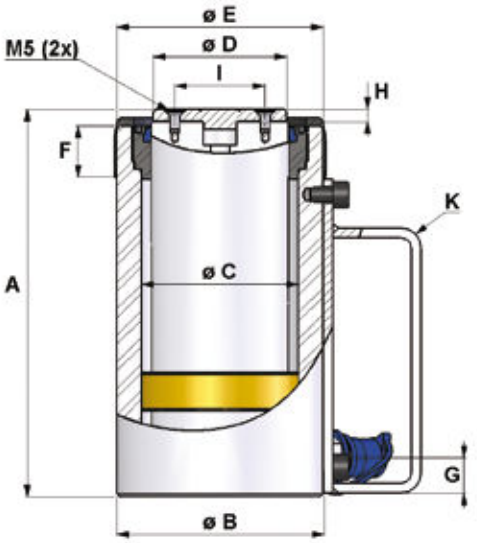
Because of its special piston guide, this series can also handle off-center loadings and has no sharp corners that can cause damage to the cylinder wall. There is also a scraper-ring fitted to the piston rod to prevent ingress of dust and dirt.

The CRF series has a removable pressure head for maximum flexibility, and can be easily built into other machinery using an external threaded fixing. The thread can also be used for mechanical locking, so that the cylinder can be depressurised in the working position under load.

- **Force 13–100 ton**
- **Stroke 25–200 mm**
- **Working pressure 800 bar**
- **Cylinder casing in stainless steel**
- **Spring return**
- **Textile-reinforced guide strip handles off-center loads**
- **Piston stop for full load**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

CRF
13–100 ton



CRF series

Article number	Capacity	Stroke	Oil volume	Lowest height	Outer Ø	Piston Ø	Piston rod Ø	Outer thread / thread length	Coupling height	Height pressure head	Fastening holes pressure head	Handle	Weight
	Ton*/kN	mm	cm³	Dimension in mm								K	Kg
				A	B	C	D	E/F	G	H	I		
CRF 13-50	13/125	50	80	134	58	45	38	M58 x 2 25	20	6	24	No	2.3
CRF 13-100		100	159	184									3.0
CRF 13-150		150	238	234									3.7
CRF 25-25	25/249	25	78	115	80	63	55	M80 x 3 30	20	7	34	No	3.7
CRF 25-50		50	156	140									4.7
CRF 25-100		100	312	190									5.9
CRF 25-150		150	468	240									7.3
CRF 25-200		200	624	290									8.7
CRF 40-50	40/394	50	251	146	105	80	70	M105 x 3 25	20	7	46	Yes	8.5
CRF 40-100		100	502	196									11.0
CRF 40-200		200	1005	296									15.6
CRF 63-50	63/616	50	393	160	130	100	80	M130 x 3 25	32	7	60	Yes	14.0
CRF 63-100		100	785	210									17.7
CRF 63-200		200	1571	310									24.9
CRF 100-50	100/962	50	614	183	160	125	100	M160 x 3 30	35	9	80	Yes	23.7
CRF 100-100		100	1227	233									28.9
CRF 100-200		200	2454	333									39.3

** Rounded value, see kN for exact value*

POWERTOOLS
HYDRAULICS

CA
5–100 ton

Single-acting cylinders:
Big sellers in a wide range

If you're looking for a 'basic' pressure cylinder and also have the benefit of space, the choice is simple. Our CA series is just all-round incredible, and handles many different types of operations, from the smallest everyday tasks to relatively heavy and advanced jobs. The series is very adaptable because of its wide range of tonnage and stroke.

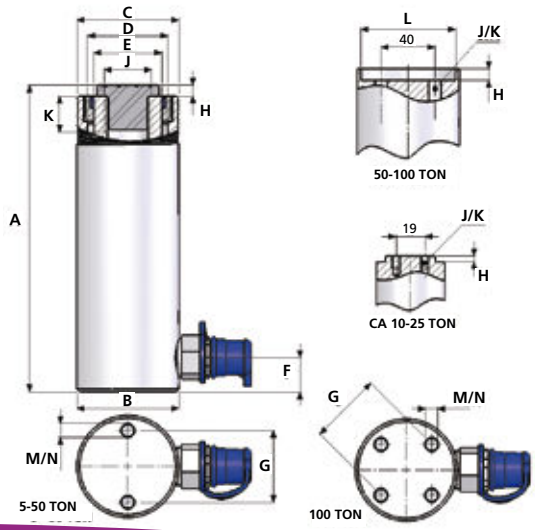
The series also has a great many accessories for varying types of work, which further increases performance. Among other features, there are adapters that fix to the cylinder and piston that makes it easy to mount on the cylinder or extend it with the various maintenance kits. The accessories fit cylinders up to 25 tons (see p 40).

The piston is equipped with a guide strip to handle off-center loads, and also has a rubber scraper ring fitted to the piston rod to prevent ingress of dirt and dust. In brief, this is a thoroughly-tested cylinder and an absolute essential in every basic range.

- **Power 5–100 ton**
- **Stroke 25–362 mm**
- **Working pressure 700 bar**
- **Spring return**
- **Guide strip handles off-center loads**
- **Many accessories available**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

CA
5–100 ton



CA series

Article number	Capacity	Stroke	Oil volume	Lowest height	Outer Ø	Collar thread/ thread length	Piston Ø	Piston rod Ø	Height to coupling	Distance fastening holes	Elevation of pressure head	Female thread piston rod/ thread length	Inner Ø	Fastening hole thread/ thread length	Weight
				Dimension in mm											
	Ton*/kN	mm	cm³	A	B	C	D	E	F	G	H	J/K	L	M/N	Kg
CA 5 -27	5/49	27	19	110	38	1 1/2" - 16UN 29 mm	30	25.4	19	25	6	3/4" - 16 UNF 16 mm	-	1/4" - 20 UNC 14 mm	0.9
CA 5 -77		77	55	165											1.3
CA 5 -127		127	90	216											1.7
CA 5 -181		181	128	273											2.2
CA 5 -232		232	165	324											2.5
CA 10-25	10/111	25	40	90	57	2 1/4" - 14UN 27 mm	45	38	19	40	3	10-24 UN 7mm	-	5/16" - 18 UNC 12 mm	1.7
CA 10-54		54	86	121							6	1"-8 UNC 17 mm			2.2
CA 10-105		105	167	171											2.9
CA 10-155		155	247	247								1"-8 UNC 22 mm			4.4
CA 10-206		206	328	298											5.5
CA 10-257		257	409	349											6.6
CA 10-305		305	486	400											6.5
CA 10-356		356	566	451											7.1
CA 15-25	15/166	25	59	124	70	2 3/4" - 16UN 30 mm	55	48	19	48	10	1"-8 UNC 17mm	-	3/8" - 16 UNC 13 mm	3.2
CA 15-51		51	121	149								1"-8 UNC 22 mm			3.8
CA 15-101		101	240	200											5
CA15-152		152	361	272					25			1"-8 UNC 25 mm			6.7
CA 15-203		203	482	322											7.7
CA 15-254		254	603	373											8.1
CA 15-305		305	725	424											9.8
CA 15-356		356	846	475											11.1
CA 25-25	25/232	25	83	140	85	3 5/16" - 12UN 49 mm	65	60	22	59	10	1 1/2"-16 UN 25 mm	-	1/2" - 13 UNC 19 mm	5.2
CA 25-51		51	169	165											6.2
CA 25-101		101	335	216											8.1
CA 25-159		159	528	273											10.2
CA 25-209		209	694	324											12.0
CA 25-260		260	863	375											13.8
CA 25-311		311	1032	426											15.4
CA 25-362		362	1201	476											17.3
CA 50-53	50/496	53	376	176	127	5" - 12UN 55 mm	95	80	33	95	6.5	M6 8mm	76	1/2" - 13 UNC 19 mm	14.7
CA 50-104		104	737	227											18.0
CA 50-159		159	1127	282											22.7
CA 50-337		337	2389	460											36.3
CA 75-155	75/727	155	1610	282	146	5 3/4" - 12UN 44 mm	115	100	29	-	4.5	M6 8mm	77	-	29.0
CA 75-333		333	3459	492											59.3
CA 100-168	100/929	168	2230	359	175	6 7/8" - 12UN 54 mm	130	100	41	140	4.5	M6 8mm	77	3/4" - 10 UNC 24 mm	41.0
CA 100-260		260	3451	450											51.0

For further information, please see our price list or browse www.powertools.se.

** Rounded value, see kN for exact value*

POWERTOOLS HYDRAULICS

CHB
7–100 ton

Hollow cylinders:

Twice as good – for both pull and push

If you have to change between pressing and pulling operations, this is what you need. This hollow cylinder can be fitted with a rod that converts it for the pulling function. If you want to use the cylinder for lifting or pressing instead, you simply change the standard head to a flat, non-hollow pressure head. This is of course available as a series accessory (see table on p 13)

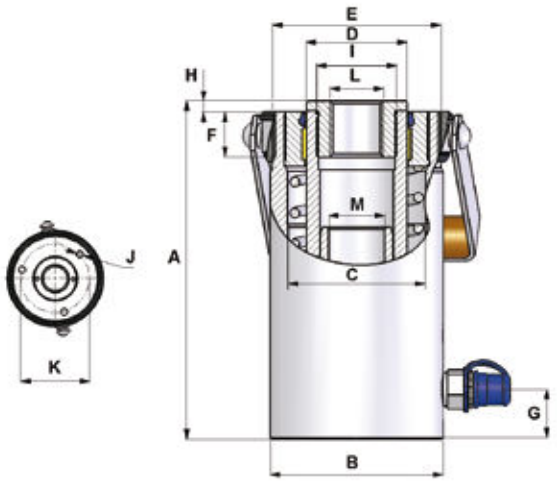
The piston-rod guide is fitted with a textile-reinforced guide strip. This provides maximum protection against metal-to-metal contact with the cylinder wall, even with off-center loads. The cylinder also has a scraper-ring to prevent ingress of dirt and dust into the cylinder bore.

CHB are available with or without spring return. In addition to fixing holes in the base of the cylinder, the series also has a collar thread so you can locate it wherever you want to, e.g. on an pulling tool.

- **Power 7–100 ton**
- **Stroke 40–150 mm**
- **Working pressure 800 bar**
- **Textile reinforced guide strip handles off-center loads**
- **Piston stop for full load**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

CHB
7–100 ton



CHB series

Article number	Capacity	Stroke	Oil volume	Spring return	Pressure head	Lowest height	Outer Ø	Piston Ø	Piston rod Ø	Outer thread/ thread length	Height to coupling	Height of connection insert	Female thread, piston rod	Fastening holes, bottom	Pitch of fastening holes	Connection shell ø or thread	Center hole ø	Handle	Weight
						Dimension in mm													
	Ton*/kN	mm	cm³	Yes/No		A	B	C	D	E/F	G	H	I	J	K	L	M	Yes/No	Kg
CHB 7 - 40	7/69	40	35	No	TCHB-7	105	58	45	38	M55 x 1.5 22	22.5	-	-	3 x M6	47	ø21	20	No	1.6
CHB 14 - 75	14/138	75	135	Yes	TCHB-14	186	69.5	55	38	UN 2" 3/4 - 16 30	19	-	-	2xUNC 5/16-18	50.8	ø20.5	20.5	No	3.5
CHB 15 - 50	15/159	50	101	Yes	TCHB-15	158	82	60	45	M82 x 3 30	19	9	M35 x 1.5	2 x M8	66.4	M24	26	No	4.6
CHB 15 - 100		100	202	Yes	TCHB-15	238												No	6.9
CHB 30 - 50	30/320	50	204	No	TCHB-30	148	108	85	63	M105 x 3 30	31	6	M50 x 2	3 x M10	86	M33	35	Yes	7.2
CHB 30 - 75		75	306	Yes	TCHB-30	211												Yes	11.7
CHB 30 - 150		150	612	Yes	TCHB-30	321					37							Yes	16.0
CHB 50 - 40	50/491	40	251	No	TCHB-50	133	124	100	75	M125 x 3 30	17	8	M50 x 2	3 x M10	93	UNC 1"3/8 - 6	37	Yes	9.4
CHB 50 - 40F				Yes	TCHB-50F	175			70									Yes	10.9
CHB 60 - 50	60/595	50	373	Yes	TCHB-60	208	155	120	85	-	27	8	M68 x 2	2 x M10	130	ø54	54	Yes	21.5
CHB 100 - 75	100/993	75	950	Yes	TCHB-100	311	185	145	100	M170 x 3 50	55	12	M72 x 2	3 x M10	168	ø55	55	Yes	48.5

** Rounded value, see kN for exact value*

For further information, please see our price list or browse www.powertools.se.

POWERTOOLS
HYDRAULICS

CML, CLA, CB
5.6–160 ton

Low-profile cylinders:
The closest there is

Powertools low-profile cylinders are specially developed for work in restricted spaces. With this bundle of energy, you can handle operations where ordinary cylinders can't reach.

The CML series is an extremely low-profile cylinder. The low build height makes it ideal for work in restricted spaces, where the lift required isn't so high. In brief, a precision cylinder!

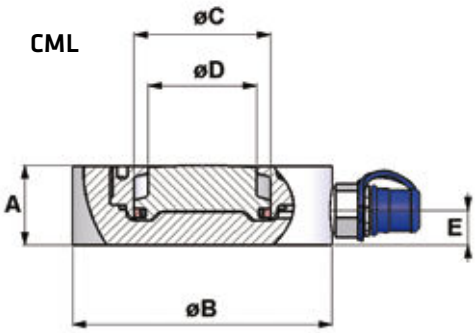
The build height of the CLA series is almost as low as that of the CML, but it is also narrow because it has flat-machined sides. Two fastening holes make it easy to screw the cylinder firmly in place wherever you wish.

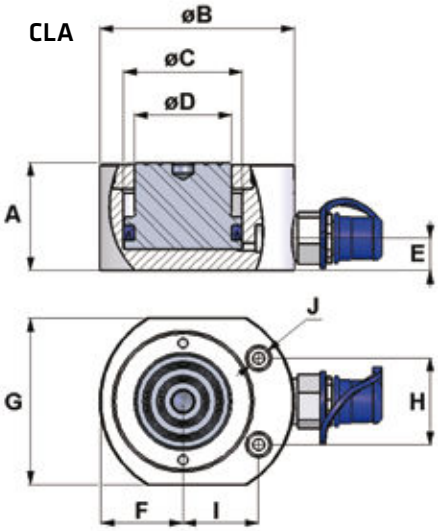
The CB series is perfect for when you need a low-profile cylinder, but still want the greatest possible flexibility vertically. Because of its adjustable pressure head, you can adjust the build height itself without support plates.

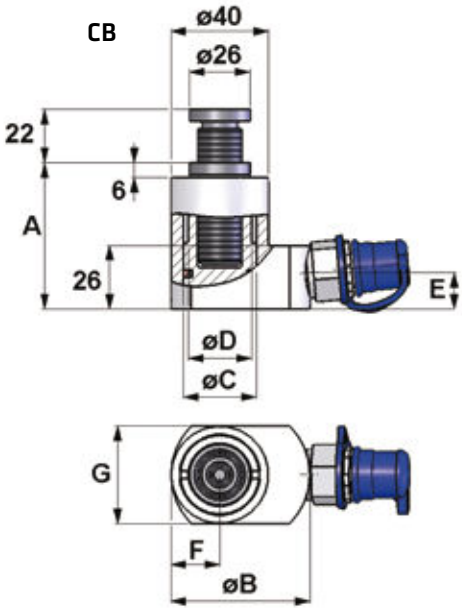
- **Power 5.6–160 ton**
- **Stroke 10–16 mm**
- **Working pressure 800 bar**
- **Piston stop for full load**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

CML, CLA, CB
5.6–160 ton







CML

CLA

CB

CML, CLA, CB series

Article number	Capacity	Stroke	Oil volume	Lowest height	Outer Ø	Piston Ø	Piston rod Ø	Coupling height	Measurement from center to radius	Measurement on cutted surface	Distance fastening holes	Distance fastening hole to center	Hole Ø	Weight
	Ton*/kN	mm	cm³	Dimension in mm										Kg
				A	B	C	D	E	F	G	H	I	J	
CB 5.6-15	5.6 / 55.4	15	11	60	57	30	26	15	20	40	-	-	-	0.8
CLA 6.5-10	6.5 / 63	10	8	37.5	65	32	26	15	25	50	25	25	5.5	0.9
CLA 20-13	20 / 186	13	31	51	90	55	45	15	38.5	77	40	35	5.5	2.2
CLA 40-13	40 / 394	13	65	61	118	80	70	17	53	106	50	48	6.5	4.8
CML 13-10	13 / 124.7	10	16	30	100	45	36	15	-	-	-	-	-	1.8
CML 25-10	25 / 244.4	10	31	37	120	63	50	16	-	-	-	-	-	3.1
CML 40-10	40 / 394	10	50	41	145	80	67	17	-	-	-	-	-	5.1
CML 60-10	60 / 615.7	10	79	46	170	100	90	21	-	-	-	-	-	7.8
CML 100-16	100 / 962	16	196	59	190	125	110	23	-	-	-	-	-	12.3
CML 160-16	160 / 1576	16	322	77	225	160	130	29	-	-	-	-	-	22.2

** Rounded value, see kN for exact value*

For further information, please see our price list or browse www.powertools.se.

POWERTOOLS
HYDRAULICS

CKF
7.2–100 ton

Compact cylinders with spring return:
The alternative for narrow spaces

With its spring return feature, this compact series is extremely user-friendly in restricted spaces. On the two smallest models, the piston is eccentrically located in the cylinder to increase accessibility, for example near wall application.

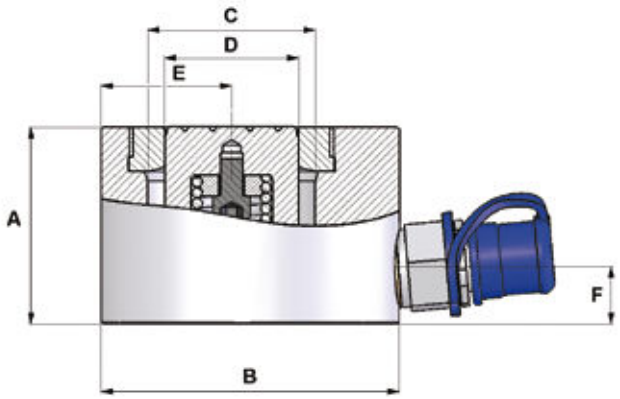
This model is somewhat higher than our extremely low-profile cylinder series, but on the other hand it has a longer stroke. It also has a spring return which draws the piston back automatically to its start position after each operation, so there's no extra work, and less wasted time.

So which series should be used when? The answer is simple -- if the operation needs several centimetres stroke – choose CKF. If space is very restricted and a shorter stroke will do, choose one of our low-profile models.

- **Power 7.2–100 ton**
- **Stroke 20–30 mm**
- **Working pressure 800 bar**
- **Spring return**
- **Eccentrically located piston rod**
- **Piston stop for full load**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

CKF
7.2–100 ton



CKF series

Article number	Capacity	Stroke	Oil volume	Lowest height	Outer Ø	Piston Ø	Piston rod Ø	Measurement from center to radius	Coupling height	Weight
	Ton*/kN	mm	cm³	Dimension in mm						Kg
				A	B	C	D	E	F	
CKF 7.2 - 20	7.2/71.2	20	18	47.5	65	34	28	27.5	16	1.1
CKF 13 - 20	13/125	20	32	53	80	45	36	35	15	1.9
CKF 25 - 25	25/245	25	78	65	96	63	50	48	16	3.3
CKF 40 - 25	40/494	25	126	77	120	80	63	60	18	6.1
CKF 60 - 30	60/616	30	236	90	130	100	80	65	18	7.9
CKF 100 - 30	100/962	30	368	108	155	125	100	77.5	25	13.7

** Rounded value, see kN for exact value*

POWERTOOLS
HYDRAULICS

CDX
25–50 ton

Pull cylinders:

The easy way to make both ends meet

When heavy components have to be moved together, pull cylinders are indispensable. Their low weight and large capacity allow one person, quickly and without strain, to locate enormous components that muscle-power alone just couldn't handle.

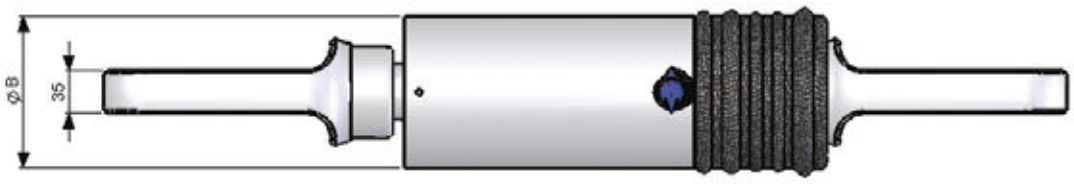
Pull cylinders have a special place in welding operations in, for example, shipyards, steel construction sites, and many other industrial applications. Drawing eyes in the ends make for easy fixing to items such as plates. Both ends are articulated for best results, and the cylinder need not be rigidly mounted.

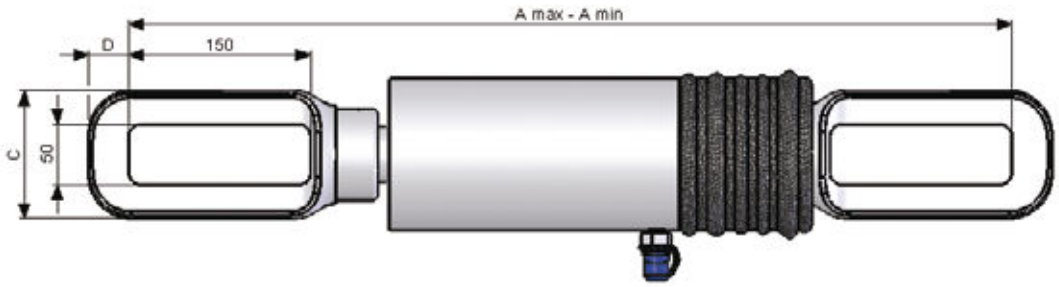
Off-center loading is effectively counteracted by the textile-reinforced guide strip in the piston-rod guide. This protection is further reinforced by a bronze bush, because the piston slides more easily against bronze than against steel, thereby preventing scratches. The cylinder also has a scraper ring and protective mask, to prevent ingress of dust and dirt into the cylinder bore.

- **Power 25–50 ton**
- **Stroke 125–140 mm**
- **Working pressure 800 bar**
- **Spring return**
- **Equipped with drawing eyes**
- **Textile-reinforced guide strip handles off-center loads**

POWERTOOLS
HYDRAULICS

CDX
25–50 ton





CDX series

Article number	Capacity	Stroke	Piston area	Oil volume	Pulling length	Outer Ø	Width	Thickness	Weight
	Ton*/kN	mm	cm²	cm³	Dimension in mm				Kg
					A Max	A Min	B	C	D	
CDX 25-150	27.6 / 271	140	34.56	484	848	708	100	80	25	20.1
CDX 50-125	50 / 492	125	62.64	783	853	728	125	105	33	31.5

** Rounded value, see kN for exact value*

POWERTOOLS
HYDRAULICS

CT
10 ton

Telescopic cylinder:

When you have high ambitions with a low cylinder

If you have limited space but need a high lift, you'd normally have to block up and lift in several stages with a low cylinder, which can take time. The best alternative in such a situation is a telescopic cylinder.

Although it is relatively low, this cylinder has an impressive stroke, and can reach higher than its own dimensions in the compressed position. The secret is three different built-in pistons, which extend in stages on demand. In other words – maximum flexibility.

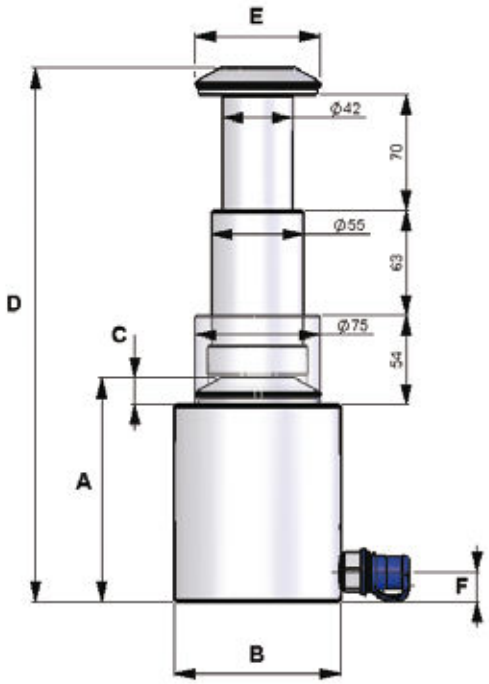
A very good example of its area of application is recovering derailed locomotives or rolling stock. The telescopic cylinder is small enough to go into the narrow space beneath the vehicle, but has a stroke long enough to lift the wheel back up onto the rail.

There is something magical about this useful cylinder, which offers you the best of both worlds. Now it's up to your own imagination as to what applications you can use it for.

- **Power 10 ton (at full stroke)**
- **Stroke 54–187 mm**
- **Working pressure 800 bar**
- **Stroke longer than its own height**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

CT
10 ton



CT series

Article number	Capacity	Stroke	Piston area	Oil volume	Height	Outer Ø	Elevation of pressure head	Maximum height	Pressure head Ø	Height to coupling	Weight
	Ton*/kN	mm	cm²	cm³	Dimension in mm						Kg
					A	B	C	D	E	F	
CT 10 -187	-	187	-	486	135	100	16	322	75	18	6.7
KOLV 1	11 / 108.7	70	13.8	97	-	-	-	-	-	-	-
KOLV 2	19 / 190.1	63	23.7	150	-	-	-	-	-	-	-
KOLV 3	35 / 364.7	54	44.2	239	-	-	-	-	-	-	-

** Rounded value, see kN for exact value*

POWERTOOLS
HYDRAULICS

CF
10 ton

Single-acting cylinders for maintenance kit:
For when you want a universal tool

This cylinder is very reminiscent of the CA series – it's a multifunctional pressure cylinder that adapts well to many different applications. The difference is that it has connection threads on both top and bottom (external threads on the cylinder, a collar thread and an internal thread on the cylinder), which make it ready for use with various accessories from our maintenance kits.

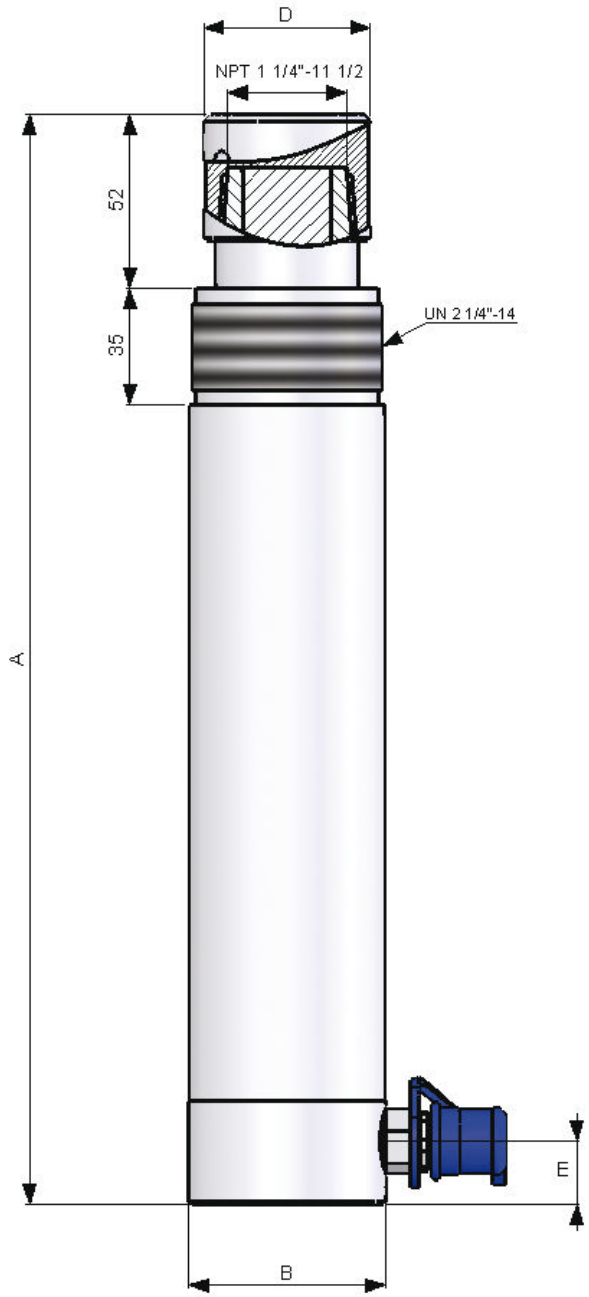
The CF series comes in two sizes and is ready for use with all the accessories of the Powertools maintenance kits without additional equipment. Among other things, it can be extensions tube, special wedge or V-shaped pressure head.

This cylinder allows you to change between various operations easily and quickly. It is also ideal when you need to mount the cylinder in position. It's just a great, flexible choice for multiple applications where a lot of accessories are needed.

- **Power 10 ton**
- **Stroke 150–300 mm**
- **Working pressure 800 bar**
- **Spring return**
- **Textile-reinforced guide strip handles off-center loads**
- **Many possible accessories**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

CF
10 ton



CF series

Article number	Capacity	Stroke	Piston area	Oil volume	Height	Outer Ø	Pressure head Ø	Height to coupling	Weight
	Ton*/kN	mm	cm²	cm³	Dimension in mm				Kg
					A	B	D	E	
CF 10 -150	12.9/127	150	15.9	238.5	327	59	50	19	5.5
CF 10 - 300	12.9/127	300	15.9	477	477	59	50	19	8.1

** Rounded value, see kN for exact value*

POWERTOOLS HYDRAULICS

Maintenance kit

Maintenance kit:

All-in-one kit when you need a little of everything

If you need either extreme stroke or power, but have for example to change the pressure head frequently, screw down the cylinder, or use various accessories, then we recommend some of our maintenance kits. In addition to the basic pack, you can extend it with several accessories.

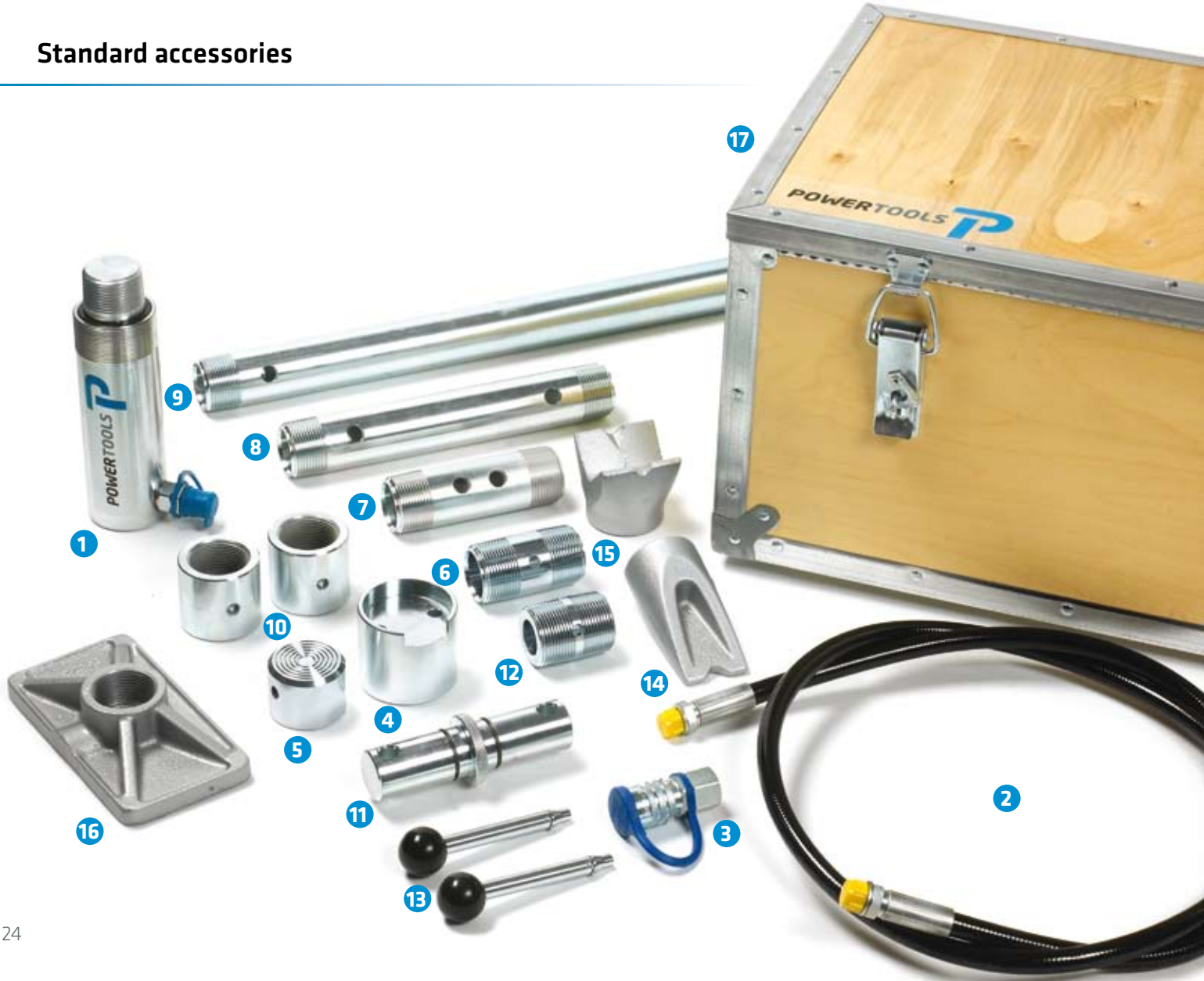
Pumps

PH 077

PH 107

PL17

Standard accessories



POWERTOOLS
HYDRAULICS

Maintenance kit

Extra accessories

TA 10-9

TA 10-11

TA 10-71

TD 6-98

TA 10-21

CD 11-127

TA 10-70

TA 10-2

TO-1

TA 10-40

CS 10-80

TA 10-72

TR 16

Pressure kits:

Art. Nr	Picture	Type of pump included
SA10-51	A	PH077 one stage hand pump
SA10-52	B	PH107 two stage hand pump
SA10-53	C	PL17 air driven pump

Standard accessories :
(Standard in all kits)

Art. Nr	Picture	Description	Quantity
CF 10-150	1	Push cylinder 127kN (800 bar)	1
TS 1.8	2	High pressure hose L=1800	1
TK 5	3	Quick coupling, female G1/4"	1
TA 10-31	4	Bottom adapter	1
TA 10-5	5	Pressure head, serrated	1
TA 10-15	6	Extension pipe 76 mm	1
TA 10-16	7	Extension pipe127 mm	1
TA 10-17	8	Extension pipe 254 mm	1
TA 10-19	9	Extension pipe 510 mm	1
TA 10-26	10	Connector, female	2
TA 10-27	11	Connection pin	1
TA 10-25	12	Connector, male	1
TA 10-28	13	Locking pin	2
TA 10-8	14	Wedge head	1
TA 10-7	15	V-head	1
TA 10-1	16	Support pad	1
TL 80	17	Wood box	1

Extra accessories:

Art. Nr	Description
TA 10-9	Angle head for piston
TA 10-11	Angle head for cylinder UN 2 1/4"-14
CS 10-80	Spreader 9 kN 700 bar
TA 10-2	Push head, ball shaped 3 "
TO 1	Oil 1 L
CD 11-127	Pull cylinder 110 kN
TR 16	Shackle including bolt and nut
TA 10-72	Chain and hook L=2000 mm
TD 6-98	Chain bracket for CD11-127
TA 10-21	Extension pipe L=760 mm
TA 10-70	Quick extension
TA 10-71	Chain traverse UN 2 1/4"-14
TA 10-40	Supporting pad, mobile

For further information, please see our price list or browse www.powertools.se.

POWERTOOLS
HYDRAULICS

Bolt tensioners
HBS

Bolt tensioners:

Friction-free for both joint and wallet

Now you can be absolutely sure your bolted joint is correctly tightened. Our ingenious bolt tensioners are a very cost-effective solution to help you avoid hard-to-calculate frictional forces required by conventional bolt tightening. Check out the animation on our website.

Previously, obtaining tolerances of +/-5% of pull value required considerably more expensive equipment. But not now! When the hand pump pressure is released and the nut removed, you have an optimum joint where the bolt has reached the ideal 90% strain value.

The secret is that the bolt is tensioned without torque. The friction that occurs in an ordinary screwed joint is eliminated – all power goes straight into the bolt instead, and creates a secure, vibration-resistant joint. Also, because the strength is used to the maximum, fewer bolts than usual are needed, and holding-up tools are not needed at all.

The bolt tensioner is simple, quiet, quick, precise, and ergonomic. No physical strain is required, and you reduce time wasted in operational stops. This is a remarkably good investment, provided you make it early in your production. In addition to the standard design, we can also offer various special solutions.

- **For M20–M100 bolts**
- **Working pressure 1000 bar**
- **Piston stop for full load**
- **Manufactured for standard nuts and bolts**
- **Spring return**
- **Special designs on request**

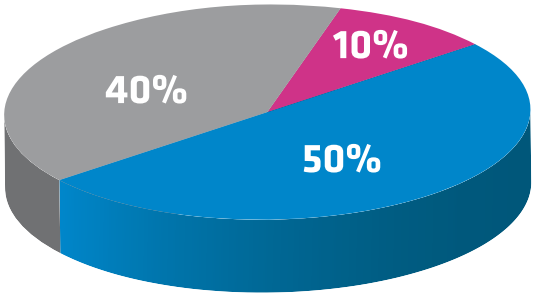
POWERTOOLS HYDRAULICS

Bolt tensioners
HBS

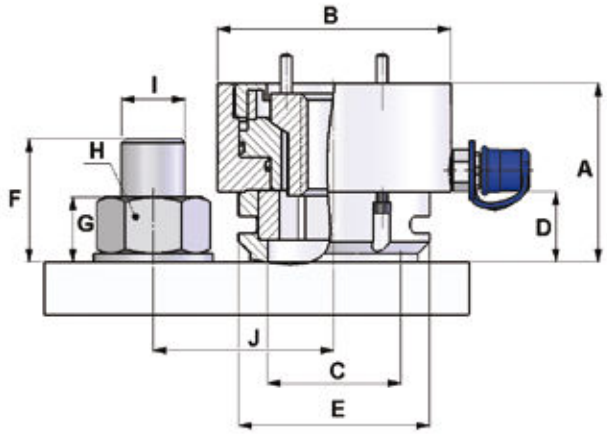
Manual bolt tensioning ...

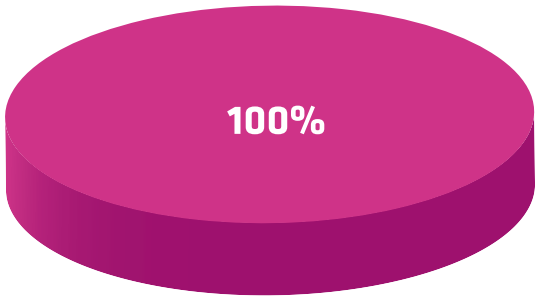
Do you want your bolted joints to depend on the human factor? Probably not. Yet many still choose to tighten bolts quite randomly. Reference is often made to 'as hard as I can /dare´, with the result that the bolt fractures or the joint works loose.

Quite apart from safety considerations, there is also unwanted waste. Only 10% of torque force is transferred to the bolt – the rest is lost in overcoming friction in the thread and the bolt contact faces, creating both stresses in the joint and unnecessary strain for the operator.



- Approx 50% of torque force is wasted in overcoming friction between bolt head, washer, and nut.
- Approx 40% is wasted in overcoming friction in the thread.
- Only about 10% is used in extending the bolt to generate clamping force.





- Without friction, 100% of the force goes straight into the bolt as clamping force.

... versus the bolt tensioner

When the bolt is stretched with hydraulics, completely without torque, there is no friction at all. Instead, practically all the tensioning force goes straight into the bolt and creates an elastic and flexible joint with optimum strength.

Just place the bolt-tensioner over the bolt, fit the thread sleeve (should be slackened half a turn) and pump up to the desired pressure. The bolt is stretched and the nut forced against the surface by the turning moment. When the pressure is then removed, you have a perfect bolted joint.

Bolt tensioners - HBS

Article number	Capacity	Stroke	Oil volume	Height	Outer Ø	Washer max Ø	Height of turning device	Turning device Ø	Minimum bolt height	Maximum nut height	Width of jaws	Thread	Minimum bolt distance	Weight
	Ton*/kN	mm	cm^3	Dimension in mm								mm	J	Kg
				A	B	C	D	E	F	G	H	I		
HBS 20	16 / 157	4	6.3	73	76	38	23	66	39	19	30	20	52	2.0
HBS 24	23 / 225.8	5	11.3	76	87	52	28	73	47	23	36	24	59	2.3
HBS 30	35 / 353.4	6	21.2	85	110	63	34	90	58	28	46	30	73	4.0
HBS 36	48 / 481	6	28.9	94	127	71	40	100	70	34	55	36	84	5.6
HBS 42	76 / 759.9	6	45.6	112	153	82	47	112	83	41	65	42	100	9.7
HBS 48	90 / 903.2	6	54.2	117	164	96	52	130	94	46	75	48	109	13.2
HBS 56	132 / 1319.5	6	79.2	146	195	107	60	144	110	54	85	56	128	20.6
HBS 64	180 / 1796.6	6	108	165	215	118	66	155	124	60	95	64	142	27.7
HBS72	226 / 2262	8	181	183	250	132	76	190	140	68	105	72	163	44.5
HBS 80	290 / 2898.1	8	231	203	284	142	84	218	156	76	115	80	184	72.0
HBS 90	361 / 3612.8	10	361	227	318	167	94	232	174	84	130	90	206	90.4
HBS 100	440 / 4406.1	10	441	279	350	178	104	267	194	94	145	100	227	132.6

** Rounded value, see kN for exact value*

For further information, please see our price list or browse www.powertools.se.

POWERTOOLS
HYDRAULICS

Spreaders
CS

Spreaders:
Helpers that open for bigger lifts

You know how it is – sometimes you need just a small lift, small enough to be able to get at with for example one cylinder, the possibility to separate rollers, or something similar. In these situations, many use an iron bar as a lever – a method that can not only be physically demanding, but also really dangerous.

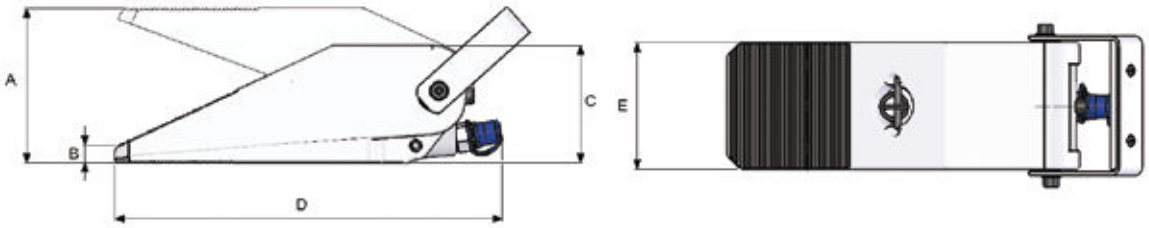
The easy, safe, and efficient alternative is to use a spreader. Our spreaders have spring return and need only an ordinary hand pump to perform to the optimum, which makes them simple to move and use in general.

They need as little as an access space of 12 mm. The spreader gets a good grip on the edge to be lifted thanks to its grooved surface. It also has a large stroke in comparison to its height. In other words, it's a perfect forerunner for cylinders in very restricted spaces.

- **Power 5 ton**
- **Lift height 120 mm**
- **Working pressure 800 bar**
- **Spring return**
- **Longer stroke than height**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

Spreaders
CS



Spreaders - CS

Article number	Capacity at tip	Maximum lifting height	Oil volume	Height in maximum position	Height in closed position	Lowest height	Total length	Width	Weight
	Ton*/kN	mm	cm³	Dimension in mm					Kg
				A	B	C	D	E	
CS 50-120	4.9/48	120	66	132	12	103	305	110	16.0

** Rounded value, see kN for exact value*

POWERTOOLS
HYDRAULICS

Cutters
RC, HPC

Cutters:

The cutting edge of efficiency

Sometimes you need to cut very hard or tough materials. The really efficient, safe, and ergonomic method is to use a hydraulic cutting tool to get the job done quickly and easily.

Cutter HPC 7.2-40 is a simple solution for cutting, e.g., steel plate, rod, and electric cables. The square opening of the cutter is 40 x 40 mm, and the tool is very useful in many applications, especially where space is restricted.

Our rivet cutter RC 25–30 is, as its name suggests, specially designed to cut off rivet heads in, e.g., truck chassis and crash-barriers. The practical design also prevents the rivet heads from flying away.

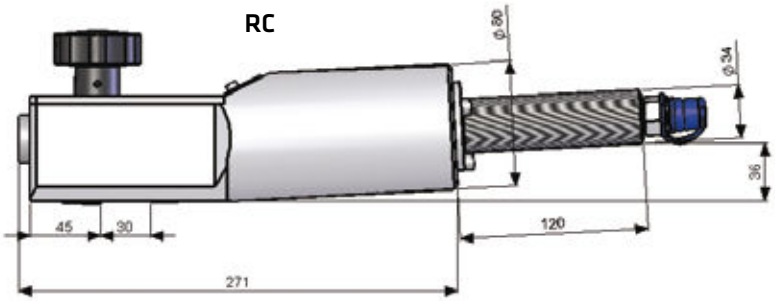
Of course, we can adapt cutters for other types of job, such as those in which the cutters have to overlap.

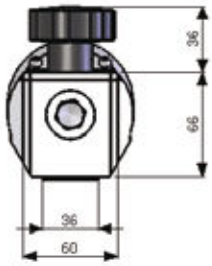
- **Working pressure 800 bar**
- **Single-acting with spring return**
- **Works in restricted spaces**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

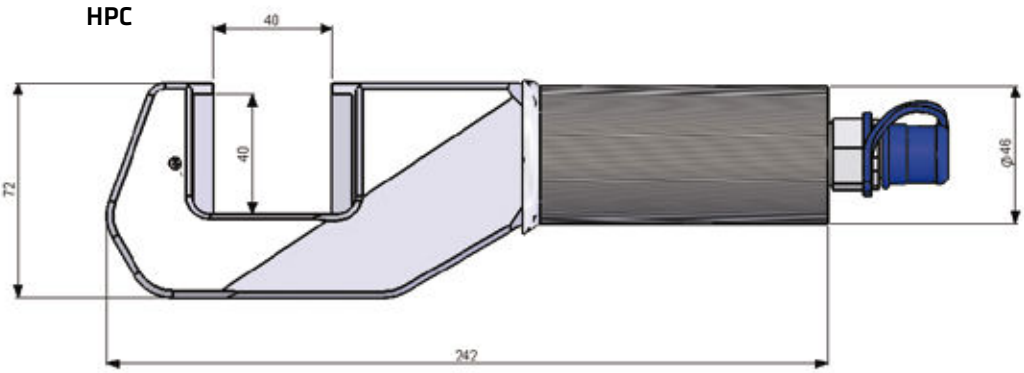
Cutters
RC, HPC

RC





HPC



Cutters-RC,HPC

Article number	Capacity rivet head	Capacity rivet shaft	Cutting force	Working pressure	Oil volume	Weight
	ø mm	ø mm	Ton*/kN	Bar	cm³	Kg
RC 25-30	30	16	25 / 244.6	800	94	9
HPC 7.2-40	-	-	7.2 / 71.3	800	36	3.7

** Rounded value, see kN for exact value*

POWERTOOLS
HYDRAULICS

Hand pumps
PH

Hand pumps:
Handy and mobile

If you only carry out a few operations at a time, a hand pump is often the best choice. Its weight is low, it needs no electricity, and is generally easy to use. Also, it needs little effort to pump, and it's ergonomic.

In addition to various sizes and working pressures, you can choose between one and two-stage pumps. The single-stage variant has the same flow for each pump stroke and is especially suitable for our low-profile cylinders, where the stroke is short and does not need such a large oil volume.

For longer strokes we recommend a two-stage variant, where you get up to 20 times greater flow at low pressure. This minimises the number of strokes needed for each operation. The two-stage variants also have a port for return oil, if you want to fit a four-way valve in order to use double-acting cylinder.

- **Working pressure up to 1500 bar**
- **One and two stage variants**
- **Oil tank 0.3–4.0 litres**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

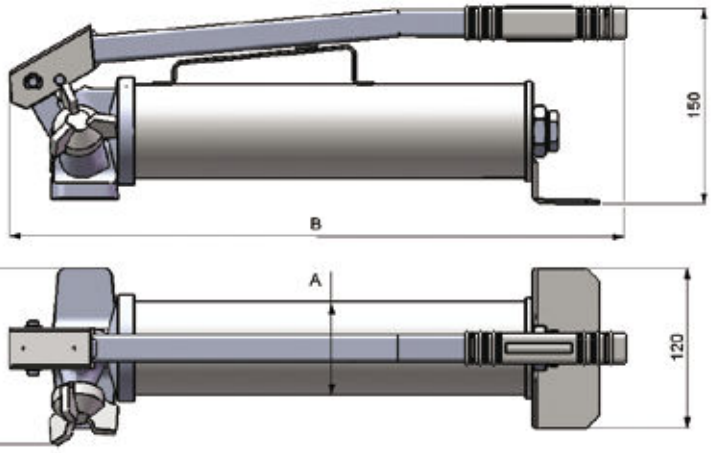
Hand pumps
PH

PH 078

PH 248

PH 108

PH 38A



Hand pumps - PH

Article number	Maximum working pressure		Capacity/ stroke at low pressure	Capacity/ stroke at high pressure	Oil volume	Pumping force	Width	Length	Weight
	MPa	Bar	cm³	cm³	cm³	N	Dimension in mm A	Dimension in mm B	Kg
PH 076	60	600	-	1.6	700	280	70	435	4.7
PH 077	70	700	-			330			4.7
PH078	80	800	-			380			4.7
PH0710	100	1000	-			470			4.7
PH 38A	80	800	20	1	300	400	74	320	6.0
PH 107	70	700	20	2	1000	320	74	620	7.4
PH 108	80	800	20	2		360			7.4
PH 1010	100	1000	20	1		230			7.4
PH 1015	150	1500	20	1		370			7.4
PH 247	70	700	20	2	2400	320	127		9.2
PH 248	80	800	20	2		360			9.2
PH 2410	100	1000	20	1		230			9.2
PH 408	80	800	20	2	4000	360	180		13.0

For further information, please see our price list or browse www.powertools.se.

POWERTOOLS
HYDRAULICS

Air driven hydraulic pumps
PL, PLF

Air driven hydraulic pumps:

The natural choice for the workshop environment

Because there is almost always a compressed-air system in workshops, this type of pump is especially applicable to that environment. It is also a very good alternative to hand pumps – not least in continual and demanding operations with single-acting cylinders. We offer two different variants of compressed-air driven hydraulic pumps.

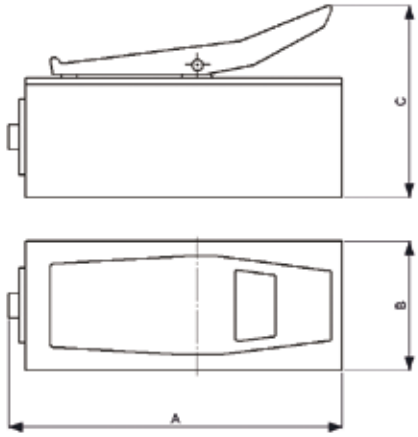
Our PL series has a foot pedal, so you can work with both hands free while you operate the pump, which helps when you want to use a cutter, a cylinder, or some other tool that needs to be adjusted or set up.

If you choose a pump from the PLF series, it will have remote control, which means you can move away from the hydraulic pump to get a better view of the work progress.

- **Working pressure up to 800 bar**
- **Foot or remote control**
- **Low weight**
- **Special designs on request**

POWERTOOLS
HYDRAULICS

Air driven hydraulic pumps
PL, PLF



PL 48

PLF 18

PL 18

Air driven hydraulic pumps - PL, PLF

Article number	Remote Control	Maximum working pressure		Flow high pressure	Oil volume	Sound Pressure	Length	Width	Height	Weight
		MPa	Bar	l / min	cm³	dB (A)	Dimension in mm A	Dimension in mm B	Dimension in mm C	Kg
PL 125	-	25	250	2.1	1400	78	297	115	171	5.1
PL 17	-	70	700	0.8						
PLF 17	X	70	700	0.8						
PL 18	-	80	800	0.7						
PLF 18	X	80	800	0.7						
PL 47	-	70	700	0.8	4500	75	420	198	221	14
PLF 47	X	70	700	0.8						
PL 48	-	80	800	0.7						
PLF 48	X	80	800	0.7						
PL 77	-	70	700	0.8	6900	75	630	198	221	17
PLF 77	X	70	700	0.8						
PL 78	-	80	800	0.7						
PLF 78	X	80	800	0.7						

For further information, please see our price list or browse www.powertools.se.

POWERTOOLS
HYDRAULICS

Electrically-driven hydraulic pumps
PE, PME

Electrically-driven hydraulic pumps:
Tough power-pack with wide range

Electrically-driven pumps are ideal in places where compressed air is not available, such as in large crane construction sites, etc, where the distance to power sources is great. We offer everything from small portable units up to larger pumps with high flows and large oil volumes.

The smaller models in our PE series are light and have remote control for easy operation. The two-stage pumps have ten times greater flows at low pressure.

The PME series is on the other hand the best choice for prolonged, heavy operation. These hard workers can drive several cylinders in parallel, and can work extra long under high pressure. The PME series can also be adapted to various types of electrically-controlled valves for maximum possible spread of operations. We can also build special pumps to meet different demands.

- **Working pressure up to 800 bar**
- **One and two-stage variants**
- **Oil tank 0.8–15 l**
- **Special designs on request**

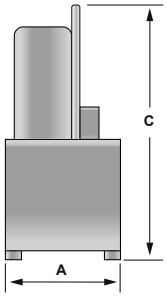
POWERTOOLS
HYDRAULICS

Electrically-driven hydraulic pumps
PE, PME

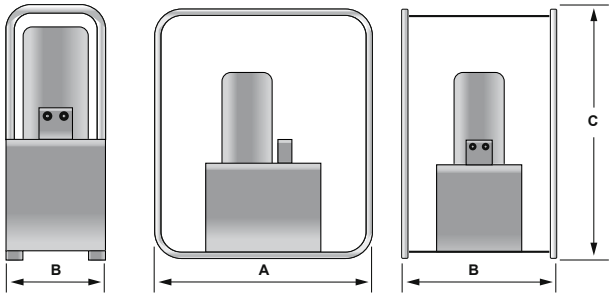
PME

PE

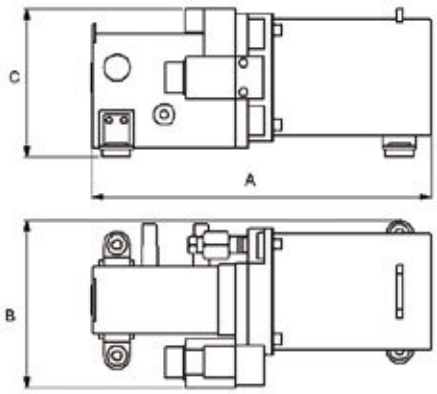
PME 10



PME 15



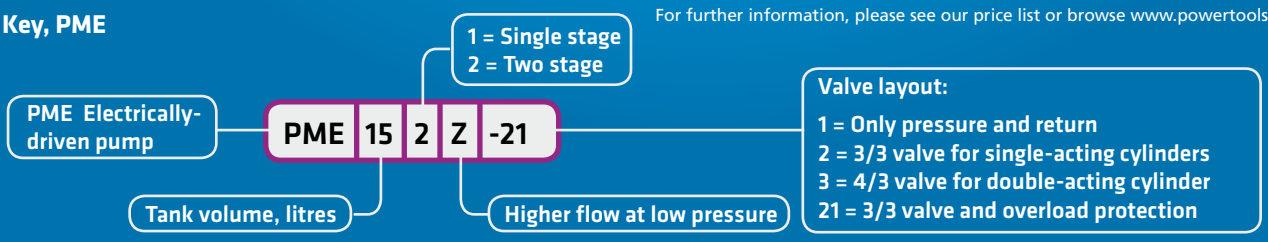
PE



Electrically-driven hydraulic pumps - PE, PME

Article number	Valve model	Maximum working pressure		Flow at high pressure	Flow at low pressure	Oil volume	Motor		Length	Width	Height	Weight
	*see note	MPa	Bar	l / min	l / min	cm³	V	kW	Dimension in mm A	Dimension in mm B	Dimension in mm C	Kg
PME 101-1	P + R	80	800	0.6	-	10000	240	1.1	280	240	670	30
PME 101-2	3/3	80	800									31
PME 101-21	3/3	80	800									33
PME 101-3	4/3	80	800									31
PME 102-1	P + R	80	800	0.3	4.7			0.75				33
PME 102-2	3/3	80	800									34
PME 102-21	3/3	80	800									36
PME 102-3	4/3	80	800									34
PME 152-1	P + R	80	800	0.9	5.3	15000	400	1.5	700	500	800	48
PME 152-2	3/3	80	800									49
PME 152-21	3/3	80	800									51
PME 152-3	4/3	80	800									49
PME 152Z-1	P + R	80	800		9.9							48
PME 152Z-2	3/3	80	800									49
PME 152Z-21	3/3	80	800									51
PE 17	-	70	700	0.2	2	800	220	0.35	322	158	142	7.9
PE 37	-	70	700			2800			459	173	156	10.8
PE 18	-	80	800			800			322	158	142	7.9
PE 38	-	80	800			2800			459	173	156	10.8

*** Key, PME**



For further information, please see our price list or browse www.powertools.se.

POWERTOOLS HYDRAULICS

Accessories

Accessories:

Everything from gauges to nipples

Our hydraulic range has many accessories to help you improve your operations even further. Shut-off valves and distribution blocks, for example, make it quick and easy to operate several cylinders at once, in whatever combinations you need.

Gauge holders TM

TM 12

TM 13

TM 11

TM 15

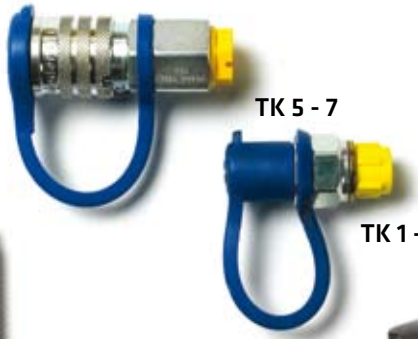
Gauges TM

TM 1
TM 5

TM 2

TM 14

Quick couplings TK



TK 5 - 7

TK 1 - 4

Nipples TX, TKA

TX 114
TX 115
TX 121

TX 116

TX 124

TKA

Shut-off valves TV

High-pressure hoses TS

Distribution blocks TKF, TKB, TKS

TKS

TKF 8

TKB

TKF 3

POWERTOOLS HYDRAULICS

Accessories

Nipples

TX 114, 115, 121

TX 116

TX 124

TKA

Gauge holders TM

Article number	Gauge port	Connection	Match	Weight
				Kg
TM 11	G1/4"	G1/4"	PH,TM2	0.4
TM 12	G 1/2"	G 1/4"	-	0.5
TM 13	G 3/8"	G 1/4"	TM1,TM5	0.5
TM 15	G 1/4"	G 1/4"	TM2	0.4

Gauges TM

Article number	Connection	Ø	Scale	Glycerin filled	Weight
		mm	Mpa		Kg
TM 1	G 3/8"	100	0-150	-	0.4
TM 2	G 1/4"	65	0-150	-	0.2
TM 5	G 3/8"	100	0-150	x	0.7
TM 14	G 1/4"	65	0-100	x	0.3

Nipples TX, TKA

Article number	Male thread	Male thread	Female thread
	A	B	C
TX 114	3/8"-18 NPTF	-	G 1/4"
TX 115	G 1/4"	-	3/8"-18 NPTF
TX 116	G 1/4"	3/8"-18 NPTF	-
TX 121	G 1/8"	-	G 1/4"
TX 124	-	-	G 1/4"
TKA	G 1/4"	-	-

Quick couplings TK

Article number	Connection	Type		Weight
				Kg
TK 1	G1/8"	Male	1000 bar	0.1
TK 2	G1/4"	Male	1000 bar	0.1
TK 3	G1/4"	Male	1500 bar	0.1
TK 4	G 1/4"	Male	Hose burst 1000 bar	0.1
TK 5	G1/4"	Female	with retaining ring 1000 bar	0.2
TK 6	G 1/4"	Female	w/o retaining ring 1000 bar	0.2
TK 7	G1/4"	Female	with retaining ring 1500 bar	0.2

High-pressure hoses TS

Article number	Connection	Length	Weight
		m	Kg
TS 0.5	G1/4"	0.5	0.25
TS 1.0	G1/4"	1	0.4
TS 1.8	G1/4"	1.8	0.6
TS 3.0	G1/4"	3	0.9
TS 6.0	G1/4"	6	1.8

Shut-off valves TV

Article number	Connection	Weight
		Kg
TV C	G1/4" x 1	0.9
TV 2D	G1/4" x 2	2.4
TV 3D	G1/4" x 3	3.7
TV 4D	G1/4" x 4	5.2

Distribution blocks TKF, TKB, TKS

Article number	Connection	Weight
		Kg
TKF 3	G1/4" x 3	0.9
TKF 8	G1/4" x 8	2
TKB	G1/4"	0.2
TKS	G 1/4"	0.2

POWERTOOLS HYDRAULICS

Accessories TCA

Accessories to the CA series:

Aids to increased performance

The CA series (see p 10) includes our most adaptable pressure cylinders. In addition to standard accessories (see p 38), this series has a number of special accessories that make it even more comprehensive. There are cylinder and piston holders or adapters which make it easy to mount cylinders or extend them with various maintenance kits. Accessories are available for cylinders up to 25 tons.

Piston holder TCA

Cylinder holder TCA

Piston adapter TCA

Cylinder adapter TCA

POWERTOOLS
HYDRAULICS

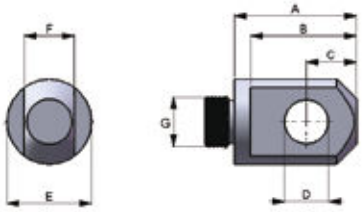
Accessories TCA

Piston holder TCA

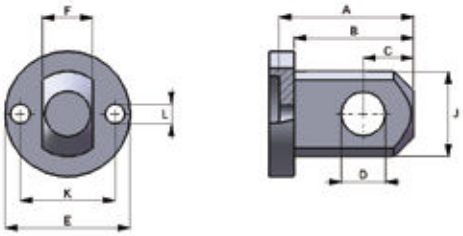
Cylinder holder TCA

Piston adapter TCA

Cylinder adapter TCA

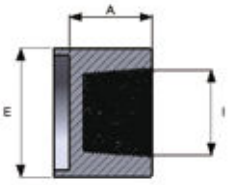


Piston holder TCA



Cylinder holder TCA

Piston adapter TCA



Cylinder adapter TCA

Accessories TCA

Article number	Matching cylinder	Cylinder holder	Piston holder	Piston adapter	Cylinder adapter	Height	Milled length	Distance to fastening holes	Hole Ø	Outer Ø	Width	Male thread	Male conical thread	Female thread	Outer Ø	Distance fastening holes	Fastening hole Ø
	Type	Type	Type	Type	Type	Dimension in mm											
						A	B	C	D	E	F	G	H	I	J	K	L
TCA 5-1	CA 5	X	-	-	-	48	41.5	16	16	44.5	14.2	-	-	-	29	25	7
TCA 5-2		-	X	-	-	41.5	34	16	16	29	14.2	3/4"-16 UNF	-	-	-	-	-
TCA 5-3		-	-	X	-	-	-	-	-	-	-	3/4"-16 UNF	3/4"-14 NPT	-	-	-	-
TCA 5-4		-	-	-	X	39	-	-	--	44.5	-	-	-	ø 19	-	-	-
TCA 5-5		-	-	-	X	39	-	-	-	44.5	-	-	-	3/4"-14 NPT	-	-	-
TCA 10-1	CA 10	X	-	-	-	67	60.5	25.5	22.35	63.5	25.4	-	-	-	43	40	8.5
TCA 10-2		-	X	-	-	62	54	25.5	22.35	43	25.4	1/8" UNC	-	-	-	-	-
TCA 10-3				X *		-	-	-	-	-	-	1/8" UNC	1 1/4"-11 1/2 NTP	-	-	-	-
TCA 10-4		-	-	-	X	45	-	-	-	65	-	-	-	1 1/4"-11 1/2 NTP	-	-	-
TCA 15-1	CA 15	X	-	-	-	67	60.5	25.5	22.35	77	25.4	-	-	-	43	48	10
TCA 10-2		-	X	-	-	62	54	25.5	22.35	43	25.4	1/8" UNC	-	-	-	-	-
TCA 25-1	CA 25	X	-	-	-	80	73.25	31.75	31.75	95	38.1	-	-	-	57	59	13.5
TCA 25-2		-	X	-	-	74.5	66.5	31.8	31.75	57	38.1	1 1/2"-16 UN	-	-	-	-	-
TCA 25-3		-	-	X	-	-	-	-	-	-	-	1 1/2"-16 UN	2"-11 1/2 NPT	-	-	-	-
TCA 25-4		-	-	-	X	50.5	-	-	-	98	-	-	-	2"-11 1/2 NPT	-	-	-

** Not available for CA10-25*

For further information, please see our price list or browse www.powertools.se.


POWERTOOLS
POWERTOOLS
10

POWERTOOLS

Hydraulics

Pneumatics

Torque wrenches

SL-Balance

Powertools – a partner in development

Powertools develops, manufactures, and sells hydraulic, compressed air, and pulling tools, as well as thread systems. With our help you can get more out of your activities, reinforce your competitiveness, and increase your profitability.

In our company we have combined experience with innovation. We have our roots in the fifties, but our eyes on the future, in addition to a real desire to help you and your company.

Smart and efficient

Our products often give you a much greater increase in efficiency than might be obtained from more expensive machines, systems, and auxiliaries. We always strive to increase efficiency in a total work process, rather than at individual points. Overall, this saves both time and money.

Highest quality

We have had a proud tradition of high quality ever since the we were known as Bahco Kraftverktyg, and we think this tradition still exists. Quite simply, an investment in quality is the best investment for you and your customers. When you get a better return from production, we do, too.

Selected for you

In our basic list, you will find a high-quality range of products – either developed by us at Powertools, or by some of the world's most competent manufacturers. Only the best is good enough when we choose the solutions that we offer you. We can also produce tailored applications to help you solve complex production problems.

Nolfelt & Co AB 2009 • Photography: Gert Jansson • Print: It Grafiska

Powertools Sweden AB
Kvartsgatan 10
SE - 749 40 Enköping

Phone: +46 171 - 663 000
Fax: + 46 171 - 393 16

powertools@powertools.se
www.powertools.se