

# HIGH PRESSURE HYDRAULIC EQUIPMENT

**CATALOGUE**



GENERAL CATALOGUE		Page
Introduction		2

CYLINDERS	Model	Page
General Features		
Single Acting Spring Return Cylinders	SSM	6
Attachments for SSM and D Cylinders	SSM and D	10
Aluminium Single Acting Cylinders, Spring Return	SAM	12
Single Acting Hollow Piston Cylinders, Spring Return	SSH	16
Aluminium Single Acting Cylinders, Hollow Piston, Spring Return	SAH	18
Single Acting Low Height Cylinders, Spring Return	SSP	22
Single Acting Low Profile Cylinders, Spring Return	SSX	24
Single Acting Locknut Cylinders, Load Return	CTC	26
Single Acting Pancake Cylinders, Locknut, Tilting Saddle, Load Return	CTX	30
Single Acting High Tonnage Cylinders, Load Return	CPC	32
Pull Cylinders, Spring Return or Double Acting	TE - TD	36
Double Acting Cylinders	D	38
Double Acting High Tonnage Cylinders	CDC	42
Aluminium Double Acting Cylinders	DDA	46
Double Acting Hollow Piston Cylinders	DDH	50
Aluminium Double Acting Cylinders, Hollow Piston	DAH	52
Double Acting Production Cylinders	DM	54
Cylinder - Pump Sets	J	58
Bottle Jacks	A	60

PUMPS	Model	Page
General Features		
Hydraulic Single Acting Hand Pumps	W	64
Hydraulic Double Acting Hand Pumps	X	64
Hydraulic Aluminium Hand Pumps	WA	66
Air Hydraulic Pumps 700 bar	Z - ZR	68
Hydraulic Powerpacks Manual Valve	HBM	70
Hydraulic Powerpacks Solenoid Valve	HBE	72
Modular Hand Pumps	WI	74
Air Driven Hydrotest Pumps	HAP	76
Hydrotest Hand Pumps	WAP - WIP	78





# INDEX

ACCESSORIES		Model	Page
General Features			80
Hydraulic Hoses	AP		82
Hydraulic Oil	AZ89		83
Hydraulic Couplers	AZ3		84
Flow Control Valves	AZ5		86
Saddles	AZ04 - AZ05 - CATS		88
Fittings and Manifolds	AZ1		90
Pressure Gauges	AV		9924

TOOLS		Model	Page
General Features			94
Hydraulic Pullers	FU - FV		96
Spread Cylinders	CY		99

GREEN PAGES		Page
Applications		101
Safety Information		104
Cylinder Selection		106
Pump Selection		107
System Assemblies		108
Technical Information		110

MODEL	Page
A	60
AP	83
AV	92
AZ04	88
AZ05	88
AZ1	90
AZ3	84
AZ5	86
AZ8	83
AZ89	83
CATS	88
CDC	42
CPC	32
CTC	26
CTX	30
CY	99
D	38

MODEL	Page
DAH	52
DDA	46
DDH	50
DM	54
FU	96
FV	96
HAP	76
HBE	72
HBM	70
J	58
SAH	18
SAM	12
SSH	16
SSM	6
SSP	22
SSX	24
TD	36
TE	36
W	64
WA	66
WAP	78
WI	74
WIP	78
X	64
Z	68
ZR	68



## Larzep manufactures and markets high pressure hydraulic equipment

Larzep was founded in 1940 and since then, we have been making constant improvements, in order to offer you a better and wider service.

Located in Northern Spain, an area with a long experience and traditionally associated with engineering, we have modern facilities and machinery for fast and reliable production.

As a leading manufacturer of hydraulic tools, we are trustworthy, safe, reliable, quick, efficient and flexible to adapt to each of our customers needs and requirements. We have a worldwide reputation that is supported by an extensive network of Distributors and Technical Service Centres ensuring we have the support and coverage for our customers worldwide.

### **ENERPAC** TOOL GROUP

Larzep is wholly owned by the Enerpac Tool Group (ETG), a diversified industrial company serving customers from operations in more than 30 countries.

The ETG businesses are leaders in a broad array of niche markets including branded hydraulic tools and solutions, specialized products and services for energy markets, and highly engineered position and motion control systems.

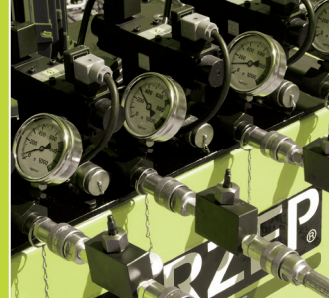
The company was founded in 1910 and is headquartered in Menomonee Falls, Wisconsin, USA. ETG trades on the NYSE under the symbol EPAC.



For further information on ETG and its businesses, visit the Company's website at [www.enerpactoolgroup.com](http://www.enerpactoolgroup.com)



# INTRODUCTION



## The most advanced technology

Our products are specifically designed to cover multiple industrial applications, and to solve in a simple and economical way the problems encountered when moving heavy loads. We use the most advanced technology in our Technical Department to make sure customers problems are solved in a timely manner utilizing our special products and tools.

## Quality

For each customer, with the best design and best manufacturing techniques and control, we test each product to guarantee its safety and reliability.

This process is supported by the Registered Firm Certificate ER-0404/1995 of UNE-EN ISO 9001 standard and the application of several European and International standards which we apply for each product range. Our Quality Management System is certified since 1995.



## HYDRAULIC CYLINDERS

**LARZEP** cylinders are manufactured using the highest quality materials. Our ranges of products are able to perform all kinds of industrial applications such as: lifting, pushing, pulling, bending, holding, etc. The Quality System UNE-EN ISO 9001 since 1995 and the standard ANSI-B30.1 / EN1494 guarantees the design, manufacturing, supply and aftersales service.

All of our products are tested individually in order to maximize their quality and the safety.


















- ✓ Fully compliant with ANSI-B30.1 / EN1494 \*.
- ✓ All units load tested under 125% of the nominal capacity.
- ✓ Mechanical end of stroke gland avoids over travel at full pressure \*.
- ✓ Cylinder bodies manufactured using solid high strength alloy steel.
- ✓ Hard chrome plated or nickel plated pistons.
- ✓ Wiper seal reduces contamination and allows longer life \*.
- ✓ Wear rings for long service life and high absorption of side-loads \*.
- ✓ Hardened grooved saddles as standard, optional tilting saddles improve side-load resistance.
- ✓ Heavy cylinders include carrying handles or eye bolts.
- ✓ Female coupling AZ3140 with rubber dust cap included in all cylinders.
- ✓ LARZEP designs and manufactures special cylinders and fixing systems.
- ✓ Bottle jacks from 3 to 50 ton.

\* On most models.





# CYLINDERS

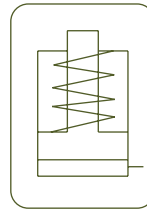
Models	Cylinder Type	Capacity ton (kN)	Stroke mm		Page
<b>SSM</b>	Single Acting Spring Return Cylinders Attachments for SSM and D cylinders (P.10)	<b>5 - 100</b> (49 - 911)	25 - 362		<b>6</b>
<b>SAM</b>	Aluminium Single Acting Cylinders, Spring Return	<b>30 - 140</b> (303 - 1.380)	50 - 300		<b>12</b>
<b>SSH</b>	Single Acting Hollow Piston Cylinders, Spring Return	<b>12 - 100</b> (121 - 1.018)	40 - 150		<b>16</b>
<b>SAH</b>	Aluminium Single Acting Cylinders, Hollow Piston, Spring Return	<b>22 - 100</b> (217 - 1.019)	50 - 150		<b>18</b>
<b>SSP</b>	Single Acting Low Height Cylinders, Spring Return	<b>10 - 100</b> (109 - 911)	38 - 62		<b>22</b>
<b>SSX</b>	Single Acting Low Profile Cylinders, Spring Return	<b>5 - 150</b> (45 - 1.386)	6 - 16		<b>24</b>
<b>CTC</b>	Single Acting Locknut Cylinders, Load Return	<b>50 - 1.000</b> (496 - 10.260)	50 - 300		<b>26</b>
<b>CTX</b>	Single Acting Pancake Cylinders, Locknut Tilting Saddle, Load Return	<b>60 - 500</b> (606 - 5.114)	45 - 50		<b>30</b>
<b>CPC</b>	Single Acting High Tonnage Cylinders, Load Return	<b>50 - 1.000</b> (539 - 10.260)	50 - 300		<b>32</b>
<b>TE - TD</b>	Pull Cylinders, Spring Return or Double Acting	<b>10 - 50</b> (109 - 483)	150		<b>36</b>
<b>D</b>	Double Acting Cylinders	<b>10 - 550</b> (109 - 5.519)	50 - 320		<b>38</b>
<b>CDC</b>	Double Acting High Tonnage Cylinders	<b>51 - 1.000</b> (496 - 10.644)	50 - 300		<b>42</b>
<b>DDA</b>	Aluminium Double Acting Cylinders	<b>50 - 100</b> (487 - 911)	50 - 300		<b>46</b>
<b>DDH</b>	Double Acting Hollow Piston Cylinders	<b>30 - 150</b> (302 - 1.407)	38 - 258		<b>50</b>
<b>DAH</b>	Aluminium Double Acting Cylinders, Hollow Piston	<b>30 - 100</b> (302 - 1.018)	50 - 250		<b>52</b>
<b>DM</b>	Double Acting Production Cylinders and Mounting Accessories	<b>4 - 23</b> (34 - 228)	28 - 260		<b>54</b>
<b>J</b>	Cylinder-Pump Sets, Single Acting	<b>5 - 100</b> (49 - 1.018)	40 - 362		<b>58</b>
<b>A</b>	Bottle Jacks	<b>3 - 50</b> (33 - 483)	113 - 180		<b>60</b>

## SINGLE ACTING SPRING RETURN CYLINDERS



- ✓ Capacity from 5 to 95 ton, stroke up to 362 mm.
- ✓ Industrial general purpose hydraulic cylinders rated for 700 bar.
- ✓ Strong spring for quick retraction, can be used in all positions.
- ✓ Collar threads, piston end threads and base holes, for accessory mounting.
- ✓ Nickel plated piston with wiper seal to extend cylinder life.
- ✓ Heavy cylinders have carrying handles or eye bolts as standard.
- ✓ Body made of solid steel.
- ✓ Stop ring can withstand full capacity of the cylinder.
- ✓ Golden ring to improve resistance against side loads.
- ✓ In case of operation under side loads, Larzep can supply tilting saddles





**S/A SPRING RETURN CYLINDERS**



Type	<b>SSM</b>
Capacity	5 - 95 ton
Stroke	25 - 362 mm
Max. pressure	700 bar

SSM CYLINDERS



In case of operation under side loads, Larzep can supply tilting saddles.

**CATS**  
Optional Tilting Saddles



P.89

**SSM & D**  
Special attachments for SSM and D models



P.10

**AZ3**  
Coupler 3/8" - 18 NPT included



P.86

**SAM**  
Lightweight Aluminium Cylinders



P.12

**D**  
Double Acting Cylinders



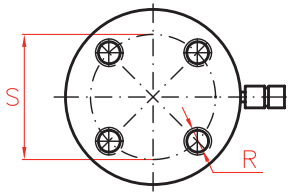
P.40

**J**  
Cylinder and pump sets

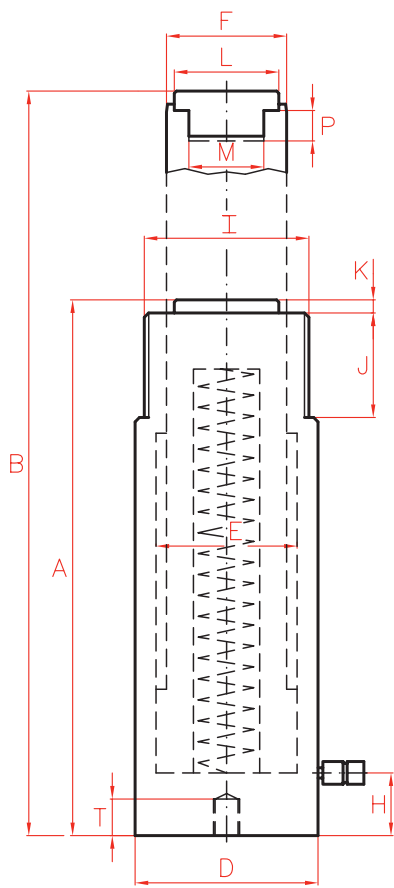
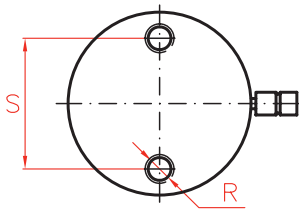


P.60

**Models from 75 to 95 ton**



**Models from 5 to 50 ton**



Capacity		Stroke	Model	Oil Cap.	A	B	D	E	F	H	I	
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm	mm	mm	mm	mm	mm	mm	UN
5	45	25	SSM00502	16	110	135	38	28,6	25,4	19	1 1/2"	- 16 UN
		79	SSM00508	50	165	244	38	28,6	25,4	19	1 1/2"	- 16 UN
		127	SSM00513	83	216	343	38	28,6	25,4	19	1 1/2"	- 16 UN
		177	SSM00518	115	273	450	38	28,6	25,4	19	1 1/2"	- 16 UN
		232	SSM00523	151	324	556	38	28,6	25,4	19	1 1/2"	- 16 UN
10	101	26	SSM01002	38	90	116	57	42,8	38,1	19	2 1/4"	- 14 UN
		54	SSM01005	78	121	175	57	42,8	38,1	19	2 1/4"	- 14 UN
		105	SSM01010	152	171	276	57	42,8	38,1	19	2 1/4"	- 14 UN
		156	SSM01015	226	248	404	57	42,8	38,1	19	2 1/4"	- 14 UN
		203	SSM01020	294	298	501	57	42,8	38,1	19	2 1/4"	- 14 UN
		257	SSM01025	373	349	606	57	42,8	38,1	19	2 1/4"	- 14 UN
		304	SSM01030	441	400	704	57	42,8	38,1	19	2 1/4"	- 14 UN
		356	SSM01035	516	451	807	57	42,8	38,1	19	2 1/4"	- 14 UN
15	142	25	SSM01502	51	124	149	70	50,8	41,3	19	2 3/4"	- 16 UN
		51	SSM01505	104	149	200	70	50,8	41,3	19	2 3/4"	- 16 UN
		101	SSM01510	205	200	301	70	50,8	41,3	19	2 3/4"	- 16 UN
		152	SSM01515	308	271	423	70	50,8	41,3	25	2 3/4"	- 16 UN
		203	SSM01520	411	322	525	70	50,8	41,3	25	2 3/4"	- 16 UN
		254	SSM01525	516	373	627	70	50,8	41,3	25	2 3/4"	- 16 UN
		305	SSM01530	619	424	729	70	50,8	41,3	25	2 3/4"	- 16 UN
		356	SSM01535	723	475	831	70	50,8	41,3	25	2 3/4"	- 16 UN
23	232	26	SSM02302	86	140	166	86	65,1	57,2	25	3 5/16"	- 12 UN
		50	SSM02305	166	165	215	86	65,1	57,2	25	3 5/16"	- 12 UN
		102	SSM02310	339	216	318	86	65,1	57,2	25	3 5/16"	- 12 UN
		158	SSM02315	525	273	431	86	65,1	57,2	25	3 5/16"	- 12 UN
		210	SSM02321	697	324	534	86	65,1	57,2	25	3 5/16"	- 12 UN
		261	SSM02326	867	375	636	86	65,1	57,2	25	3 5/16"	- 12 UN
		311	SSM02331	1033	425	736	86	65,1	57,2	25	3 5/16"	- 12 UN
		362	SSM02336	1202	476	838	86	65,1	57,2	25	3 5/16"	- 12 UN
30	295	209	SSM03021	880	387	596	102	73,0	57,2	29	3 5/16"	- 12 UN
50	498	51	SSM05006	362	176	227	127	95,2	79,4	33	5"	- 12 UN
		101	SSM05010	719	227	328	127	95,2	79,4	33	5"	- 12 UN
		159	SSM05016	1131	283	442	127	95,2	79,4	35	5"	- 12 UN
		260	SSM05025	1855	384	644	127	95,2	79,4	35	5"	- 12 UN
		337	SSM05034	2399	460	797	127	95,2	79,4	35	5"	- 12 UN
75	718	156	SSM07516	1601	286	442	146	114,3	95,3	30	5 3/4"	- 12 UN
		333	SSM07533	3417	492	825	146	114,3	95,3	30	5 3/4"	- 12 UN
95	933	51	SSM10006	676	219	270	178	130,2	104,8	41	6 7/8"	- 12 UN
		168	SSM10015	2239	357	525	178	130,2	104,8	41	6 7/8"	- 12 UN
		260	SSM10026	3466	449	709	178	130,2	104,8	41	6 7/8"	- 12 UN

\*SSM01002 plunger top has 2 holes

\*10-24UNC separated 19mm and does not include removable saddle

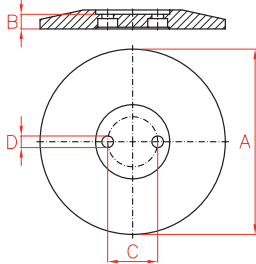




	J	K	L	M	P	R	S	T	Area	Weight	Model	With tilting saddle	
	mm	mm	mm	UN	mm	UN	mm	mm	cm <sup>2</sup>	kg	LARZEP	A	Model
	28	6	25	3/4" - 16	14	1/4" - 20	25	14	6,4	1,0	SSM00502	-	-
	28	6	25	3/4" - 16	14	1/4" - 20	25	14	6,4	1,5	SSM00508	-	-
	28	6	25	3/4" - 16	14	1/4" - 20	25	14	6,4	1,9	SSM00513	-	-
	28	6	25	3/4" - 16	16	1/4" - 20	25	14	6,4	2,4	SSM00518	-	-
	28	6	25	3/4" - 16	16	1/4" - 20	25	14	6,4	2,8	SSM00523	-	-
	27	-	-	#10 - 24	6	5/16" - 18	40	12	14,4	1,8	SSM01002	-	-
	27	6	35	1" - 8	19	5/16" - 18	40	12	14,4	2,3	SSM01005	136	CATS12
	27	6	35	1" - 8	19	5/16" - 18	40	12	14,4	3,3	SSM01010	186	CATS12
	27	6	35	1" - 8	19	5/16" - 18	40	12	14,4	4,4	SSM01015	263	CATS12
	27	6	35	1" - 8	19	5/16" - 18	40	12	14,4	5,4	SSM01020	313	CATS12
	27	6	35	1" - 8	19	5/16" - 18	40	12	14,4	6,4	SSM01025	364	CATS12
	27	6	35	1" - 8	19	5/16" - 18	40	12	14,4	6,8	SSM01030	415	CATS12
	27	6	35	1" - 8	19	5/16" - 18	40	12	14,4	8,2	SSM01035	466	CATS12
	30	9	38	1" - 8	25	3/8" - 16	48	12	20,3	3,3	SSM01502	135	CATS12
	30	9	38	1" - 8	25	3/8" - 16	48	12	20,3	4,1	SSM01505	160	CATS12
	30	9	38	1" - 8	25	3/8" - 16	48	12	20,3	5,0	SSM01510	211	CATS12
	30	9	38	1" - 8	25	3/8" - 16	48	12	20,3	6,8	SSM01516	282	CATS12
	30	9	38	1" - 8	25	3/8" - 16	48	12	20,3	8,2	SSM01520	333	CATS12
	30	9	38	1" - 8	25	3/8" - 16	48	12	20,3	9,5	SSM01525	384	CATS12
	30	9	38	1" - 8	25	3/8" - 16	48	12	20,3	10,9	SSM01530	435	CATS12
	30	9	38	1" - 8	25	3/8" - 16	48	12	20,3	11,8	SSM01535	486	CATS12
	49	10	51	1 1/2" - 16	25	1/2" - 13	59	19	33,3	5,9	SSM02302	155	CATS52
	49	10	51	1 1/2" - 16	25	1/2" - 13	59	19	33,3	6,4	SSM02305	180	CATS52
	49	10	51	1 1/2" - 16	25	1/2" - 13	59	19	33,3	8,2	SSM02310	231	CATS52
	49	10	51	1 1/2" - 16	25	1/2" - 13	59	19	33,3	10,0	SSM02315	288	CATS52
	49	10	51	1 1/2" - 16	25	1/2" - 13	59	19	33,3	12,2	SSM02321	339	CATS52
	49	10	51	1 1/2" - 16	25	1/2" - 13	59	19	33,3	14,1	SSM02326	390	CATS52
	49	10	51	1 1/2" - 16	25	1/2" - 13	59	19	33,3	16,3	SSM02331	440	CATS52
	49	10	51	1 1/2" - 16	25	1/2" - 13	59	19	33,3	17,7	SSM02336	491	CATS52
	49	10	51	1 1/2" - 16	25	1/2" - 13	59	16	42,9	18,1	SSM03021	402	CATS52
	55	2	71	—	—	1/2" - 13	95	19	71,3	15,0	SSM05006	191	CATS100
	55	2	71	—	—	1/2" - 13	95	19	71,3	19,1	SSM05010	242	CATS100
	55	2	71	—	—	1/2" - 13	95	19	71,3	23,1	SSM05016	298	CATS100
	55	2	71	—	—	1/2" - 13	95	19	71,3	31,8	SSM05025	399	CATS100
	55	2	71	—	—	1/2" - 13	95	19	71,3	37,6	SSM05034	475	CATS100
	44	2	71	—	—	5/8" - 13	114	16	102,6	29,5	SSM07516	302	CATS100
	44	2	71	—	—	5/8" - 13	114	16	102,6	59,0	SSM07533	508	CATS100
	44	2	71	—	—	3/4" - 10 UNC	140	25	133,1	36,7	SSM10006	235	CATS100
	44	2	71	—	—	3/4" - 10 UNC	140	25	133,1	59,0	SSM10015	373	CATS100
	44	2	71	—	—	3/4" - 10 UNC	140	25	133,1	72,6	SSM10026	465	CATS100

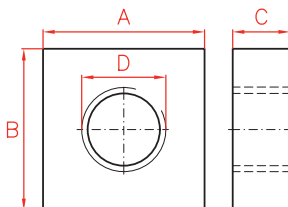
## ATTACHMENTS FOR SSM AND D MODELS

### Base Plate



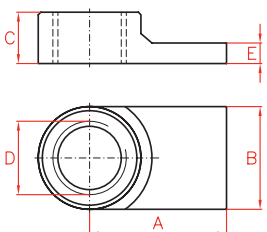
Capacity (ton)		Model	A	B	C	D	Weight
SSM	D	LARZEP	mm	mm	mm	mm	kg
10	10	SM010P	180	15	39	8,5	2,7
15	-	SM015P	180	15	47	10,0	2,7
23	20	SM023P	215	17	58	13,5	4,9
30	30	SM030P	215	17	66	13,5	4,9

### Mounting Block



Capacity (ton)		Model	A	B	C	D
SSM	D	LARZEP	mm	mm	mm	UN
5	-	RB5	88	76	25	1 1/2"-16 UN
10	10	RB10	114	88	25	2 1/4"-14 UN
15	-	RB15	114	101	38	2 3/4"-16 UN
23	-	RB25	165	127	50	3 5/16"-12UN

### Collar Toe



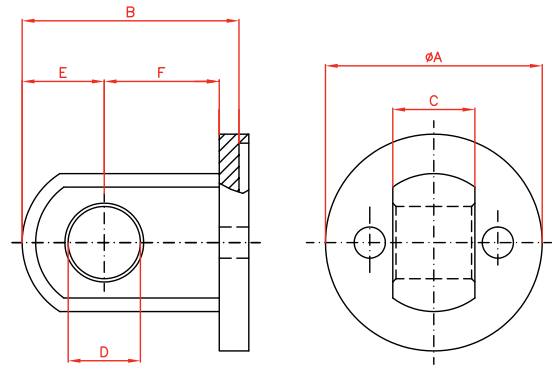
### WARNING

When using this accessory do not exceed 350 bar.

Capacity (ton)		Model	A	B	C	D	E
SSM	D	LARZEP	mm	mm	mm	UN	mm
5	-	A1034	59	32	50	1 1/2"-16UN	11
10	10	A20	79	57	57	2 1/4"-14UN	14
23	-	A595	103	80	51	3 5/16"-12UN	40

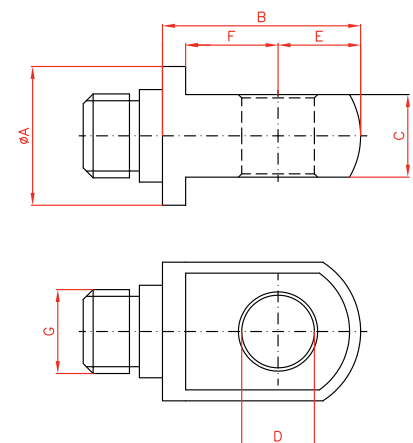


Clevis Eye Body



Capacity (ton)		Model	A	B	C	D	E	F
SSM	D	LARZEP	mm	mm	mm	mm	mm	mm
5	-	REB5	44	47	14	16	16	25
10	-	REB10	63	66	25	22	25	35
15	-	REB15	76	66	25	22	25	35
23	20	REB25	95	79	38	31	31	41

Clevis Eye Piston

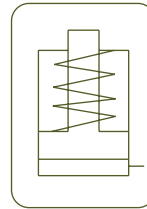


Capacity (ton)		Model	A	B	C	D	E	F	G
SSM	D	LARZEP	mm	UN	mm	mm	mm	mm	UN
5	-	REP5	28	45	14	16	16	19	3/4"-16 UN
10-15	10-20	REP10	42	61	25	22	25	28	1"-8UN
23	30	REP25	57	71	38	31	31	35	1 1/2"-16UN



**ALUMINIUM SINGLE ACTING CYLINDERS, SPRING RETURN**

- ✓ Lightweight, general purpose cylinders from 30 to 140 ton, stroke up to 300 mm.
- ✓ Made from high strength aluminium alloy.
- ✓ Solid piston, spring return.
- ✓ All aluminium parts are treated to improve resistance and extend working life.
- ✓ 40% weight reduction when compared with steel equivalent.
- ✓ Fitted with steel base plate and saddle for wear resistance.
- ✓ Not suitable for high-cycle applications.



The body, stop ring and piston of the cylinder are hard anodized to strengthen the working area and extend its working life.

The lighter weight of aluminium makes them especially suitable for use in sites of difficult access.

It is highly recommended to place the cylinder on a flat area to avoid any damage to the base.



**S/A ALUMINIUM CYLINDERS**



Type	<b>SAM</b>
Capacity	<b>30 - 140 ton</b>
Stroke	<b>50 - 300 mm</b>
Max. pressure	<b>700 bar</b>

SAM CYLINDERS

**SAH**  
Lightweight Aluminium  
Hollow Piston Cylinders



P.18

**DDA**  
Double Acting Aluminium Cylinders



P.48

**WA**  
Aluminium Hand Pumps



P.68

**HBM / HBE**  
Powerpacks



P.72

**Z12107**  
Air Hydraulic Pumps

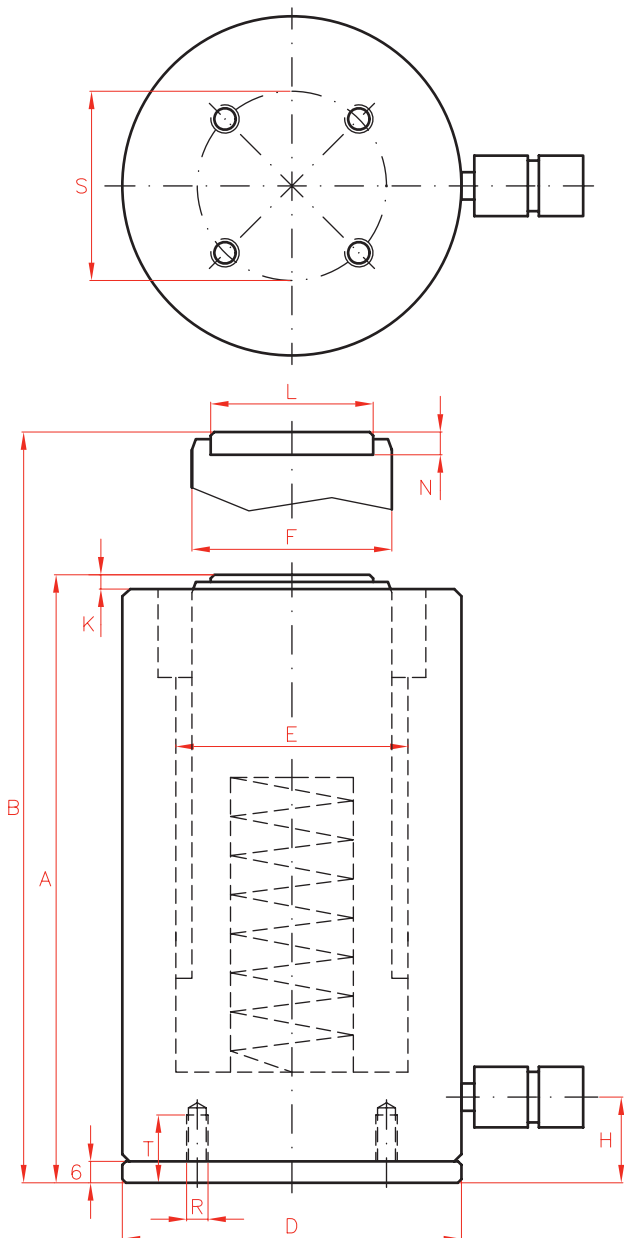


P.70

**W**  
Single Acting Hand Pumps



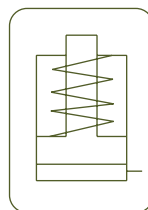
P.66



Capacity		Stroke	Model	Oil Cap.	A
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm
30	303	50	SAM03005	221	172
		100	SAM03010	442	222
		150	SAM03015	663	272
		200	SAM03020	883	322
		250	SAM03025	1.104	372
		300	SAM03030	1.325	422
50	487	50	SAM05005	354	180
		100	SAM05010	709	230
		150	SAM05015	1.063	280
		200	SAM05020	1.417	330
		250	SAM05025	1.772	380
		300	SAM05030	2.126	430
100	911	50	SAM10005	663	210
		100	SAM10010	1.326	260
		150	SAM10015	1.989	310
		200	SAM10020	2.652	360
		250	SAM10025	3.315	410
		300	SAM10030	3.982	460
140	1.380	50	SAM14005	1.005	225
		100	SAM14010	2.010	275
		150	SAM14015	3.016	325
		200	SAM14020	4.021	375
		250	SAM14025	5.026	425



S/A ALUMINIUM CYLINDERS



Type **SAM**

Capacity **30 - 140 ton**

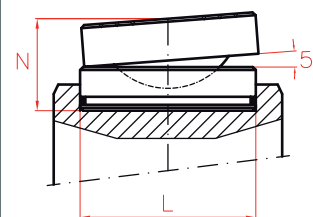
Stroke **50 - 300 mm**

Max. pressure **700 bar**

SAM CYLINDERS

OPTIONAL TILTING SADDLES

Model	L	N	Weight
LARZEP	mm	mm	kg
AZ0401	45	36	0,4
AZ0402	61	39	0,8
AZ0404	88	47	2,2



P.89

	B	D	E	F	H	K	L	N	R	S	T	Area	Weight	Model	With tilting saddle	
	mm	mm	mm	mm	mm	mm	mm	mm		mm	mm	cm <sup>2</sup>	kg	LARZEP	A	Model
	222	105	75	60	24	6	45	11	M6	85	19	44	4,8	SAM03005	197	AZ0401
	322	105	75	60	24	6	45	11	M6	85	19	44	5,4	SAM03010	247	AZ0401
	422	105	75	60	24	6	45	11	M6	85	19	44	6,4	SAM03015	297	AZ0401
	522	105	75	60	24	6	45	11	M6	85	19	44	7,4	SAM03020	347	AZ0401
	622	105	75	60	24	6	45	11	M6	85	19	44	8,4	SAM03025	397	AZ0401
	722	105	75	60	24	6	45	11	M6	85	19	44	9,3	SAM03030	447	AZ0401
	230	135	95	80	26	7	61	12	M6	115	19	71	8,0	SAM05005	207	AZ0402
	330	135	95	80	26	7	61	12	M6	115	19	71	9,5	SAM05010	257	AZ0402
	430	135	95	80	26	7	61	12	M6	115	19	71	11,0	SAM05015	307	AZ0402
	530	135	95	80	26	7	61	12	M6	115	19	71	11,5	SAM05020	357	AZ0402
	630	135	95	80	26	7	61	12	M6	115	19	71	13,0	SAM05025	407	AZ0402
	730	135	95	80	26	7	61	12	M6	115	19	71	14,5	SAM05030	457	AZ0402
	260	180	130	110	32	5	88	14	M6	160	19	133	16,0	SAM10005	243	AZ0404
	360	180	130	110	32	5	88	14	M6	160	19	133	19,0	SAM10010	293	AZ0404
	460	180	130	110	32	5	88	14	M6	160	19	133	22,0	SAM10015	343	AZ0404
	560	180	130	110	32	5	88	14	M6	160	19	133	25,0	SAM10020	393	AZ0404
	660	180	130	110	32	5	88	14	M6	160	19	133	28,0	SAM10025	443	AZ0404
	760	180	130	110	32	5	88	14	M6	160	19	133	31,0	SAM10030	493	AZ0404
	275	225	160	140	43	6	88	14	M6	200	19	201	24,0	SAM14005	258	AZ0404
	375	225	160	140	43	6	88	14	M6	200	19	201	29,0	SAM14010	308	AZ0404
	475	225	160	140	43	6	88	14	M6	200	19	201	34,0	SAM14015	358	AZ0404
	575	225	160	140	43	6	88	14	M6	200	19	201	39,0	SAM14020	408	AZ0404
	675	225	160	140	43	6	88	14	M6	200	19	201	44,0	SAM14025	458	AZ0404



**SINGLE ACTING HOLLOW PISTON CYLINDERS, SPRING RETURN**



- ✓ Capacity from 12 to 95 ton, stroke up to 150 mm.
- ✓ Spring return, hollow piston hydraulic cylinders rated for 700 bar.
- ✓ For push and pull applications: Tensioning cables and bolts, pulling sleeves and bearings.
- ✓ Hollow nickel plated piston.
- ✓ Collar threads, piston end thread and base holes for easy fixing.
- ✓ Compatible with our complete puller range.
- ✓ Hollow plain saddle as standard on most models.
- ✓ Optional solid or threaded saddles available.
- ✓ Hollow cylinders also available in double acting DDH and aluminium single and double acting SAH and DAH.

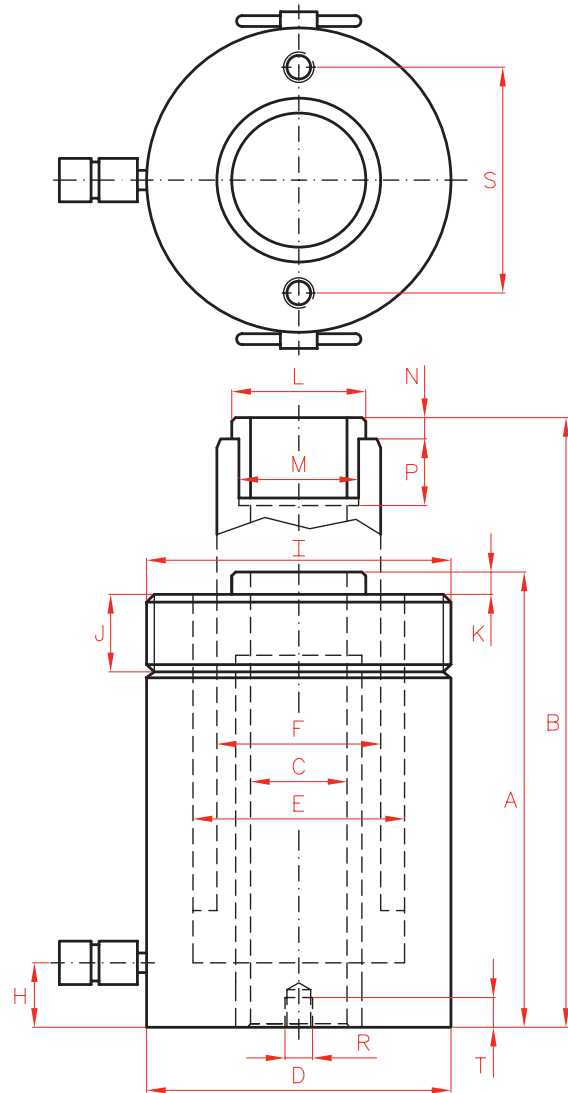
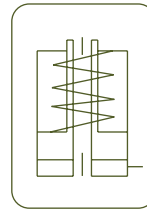
**AZ04 & AZ05**  
Optional Saddles available  
Tilting or hollow



P.89

Capacity		Stroke mm	Model LARZEP	Oil Cap. cm <sup>3</sup>	A mm	B mm	C mm	
ton	kN							
12	125	42	SSH01204	75	120	162	19,5	
		42	SSH01204P	75	82	104	19,5	
		42	SSH01204T	75	120	162	19,5	
		76	SSH01208	136	184	260	19,5	
20	215	49	SSH02205	150	162	211	26,9	
		155	SSH02215	476	306	461	26,9	
30	326	64	SSH03006	298	178	242	33,3	
		155	SSH03015	722	330	485	33,3	
60	576	76	SSH06008	626	247	323	53,8	
		153	SSH06015	1.259	323	476	53,8	
95	931	76	SSH10008	1011	254	330	79,0	





**HOLLOW PISTON CYLINDERS**



Type	<b>SSH</b>
Capacity	12 - 95 ton
Stroke	42 - 155 mm
Max. pressure	700 bar

SSH CYLINDERS

**SAH**  
Lightweight Aluminium  
Hollow Piston Cylinders



P.18

**DDH**  
Double Acting Hollow Piston Cylinders



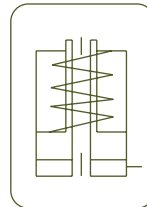
P.52

D	E	F	H	I	J	K	L	M	P	R	S	T	Area	Weight	Model
mm	mm	mm	mm	UN	mm	mm	mm	UN	mm	UN	mm	mm	cm <sup>2</sup>	kg	LARZEP
70	54,1	35,1	25	2¾"- 16	30	-	-	-	-	-	-	-	18	2,8	SSH01204
70	54,1	35,1	14	2¾"- 16	30	-	-	¾"- 16	16	5/16"-18	50,8	6,3	18	2,8	SSH01204P
70	54,1	35,1	25	2¾"- 16	30	-	-	¾"- 16	16	-	-	-	18	2,8	SSH01204T
70	54,1	35,1	25	2¾"- 16	30	-	-	-	-	5/16"-18	50,8	12,7	32	4,4	SSH01208
98	73,1	54,1	19	37/8"- 12	38	9,7	54	19/16"- 16	19	3/8"-16	82,6	9,4	32	7,7	SSH02205
98	73,1	54,1	25	37/8"- 12	38	9,7	54	19/16"- 16	19	3/8"-16	82,6	9,4	44	14,1	SSH02215
114	88,9	63,5	21	4½"- 12	42	9,0	63	113/16"- 16	22	3/8"-16	92,2	14,0	44	10,9	SSH03006
114	88,9	63,5	25	4½"- 12	42	9,0	63	113/16"- 16	22	3/8"-16	92,2	14,0	84	21,8	SSH03015
159	123,9	91,9	31	6¼"- 12	48	12,0	91	2¾"- 16	19	½"-13	130,3	14,0	84	28,1	SSH06008
159	123,9	91,9	31	6¼"- 12	48	12,0	91	2¾"- 16	19	½"-13	130,3	14,0	148	35,4	SSH06015
212	165,1	127,0	38	83/8"- 12	60	12,0	126	4"- 16	25	5/8"-11	177,8	19,0		63,0	SSH10008

**ALUMINIUM SINGLE ACTING CYLINDERS, HOLLOW PISTON, SPRING RETURN**

- ✓ Lightweight hollow cylinders with capacities from 22 to 100 ton and up to 150 mm stroke.
- ✓ Made from high strength aluminium alloy.
- ✓ Hollow piston, spring return.
- ✓ All aluminium parts are treated to improve resistance and extend working life.
- ✓ Fitted with steel base plate and saddle for wear resistance.
- ✓ 40% weight reduction when compared with steel equivalent.
- ✓ Hollow plain saddle as standard.
- ✓ Not suitable for high-cycle applications.





**HOLLOW PISTON ALUM. CYLINDERS**



Type **SAH**

Capacity **22 - 100 ton**

Stroke **50 - 150 mm**

Max. pressure **700 bar**

SAH CYLINDERS



**AZ04 & AZ05**  
Optional Saddles available  
Plain, threaded or solid



P.89

**W**  
Single Acting Hand Pumps



P.66

**DAH**  
Aluminium Double Acting  
Hollow Piston Cylinders



P.54

**WA**  
Aluminium Hand Pumps



P.68





**HBM / HBE**  
Powerpacks



P.72

**Z12107**  
Air Hydraulic Pumps

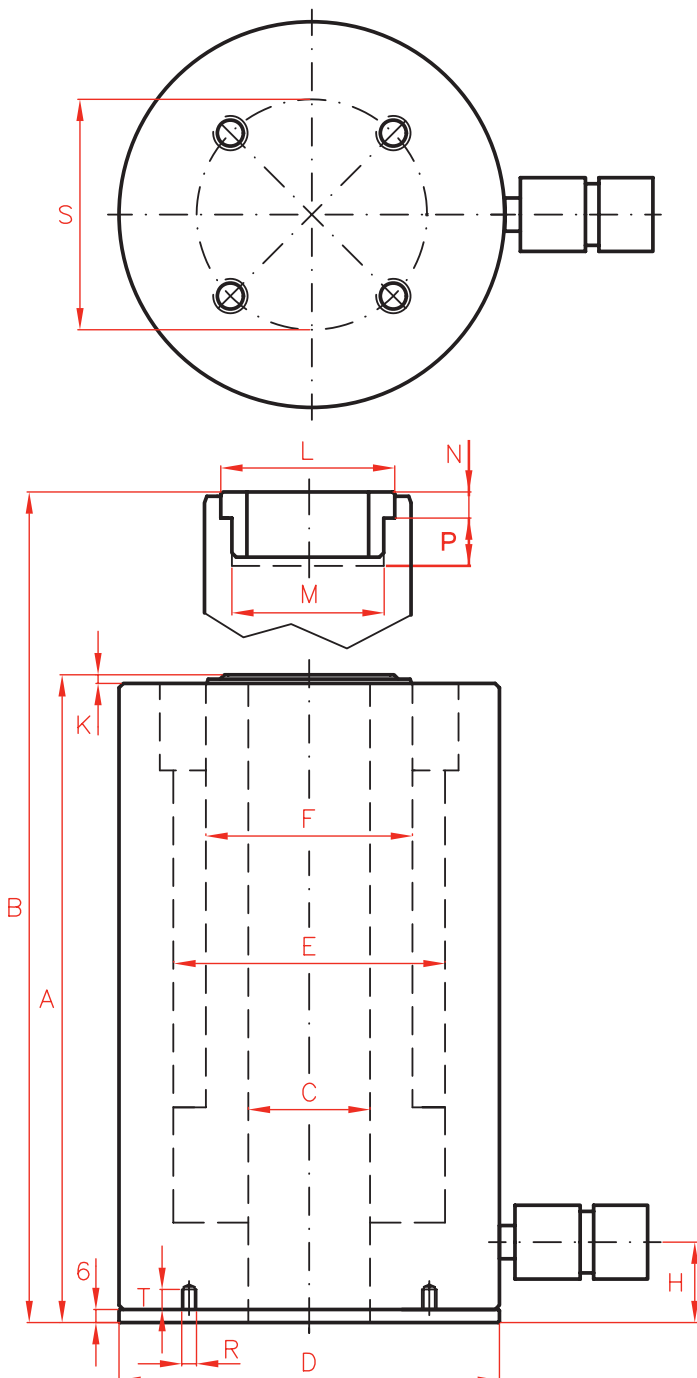


P.70

**W**  
Single Acting Hand Pumps



P.66



Capacity		Stroke	Model	Oil Cap.	A
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm
22	217	50	SAH02205	158	183
		100	SAH02210	316	253
		150	SAH02215	474	323
30	302	50	SAH03005	220	210
		100	SAH03010	440	278
		150	SAH03015	660	350
60	578	50	SAH06005	421	243
		100	SAH06010	842	298
		150	SAH06015	1.263	363
100	1.018	50	SAH10005	742	260
		100	SAH10010	1.484	327
		150	SAH10015	2.226	397

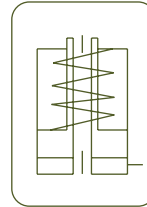


**AZ04 & AZ05**

Optional Saddles available  
Plain, threaded or solid



P.89



**HOLLOW PISTON ALUM. CYLINDERS**

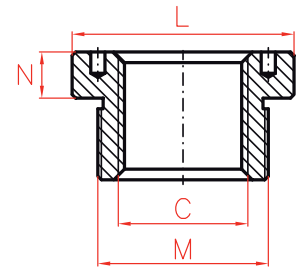


Type	<b>SAH</b>
Capacity	<b>22 - 100 ton</b>
Stroke	<b>50 - 150 mm</b>
Max. pressure	<b>700 bar</b>

SAH CYLINDERS

**OPTIONAL THREADED SADDLES**

Cylinder Model	Model	C	L	M	N
LARZEP	LARZEP	UN	mm	UN	mm
SAH022	<b>AZ0552</b>	1"-8	48	1 9/16"-16	8
SAH030	<b>AZ0553</b>	1 1/4"-7	55	1 13/16"-16	9
SAH060	<b>AZ0556</b>	1 5/8"-5 1/2	80	2 3/4"-16	12
SAH100	<b>AZ0560</b>	2 1/2"-8	116	4"-16	13



P.89

	B	C	D	E	F	H	K	L	M	N	P	R	S	T	Area	Weight	Model
	mm	mm	mm	mm	mm	mm	mm	mm	UN	mm	mm		mm	mm	cm <sup>2</sup>	kg	LARZEP
	233	27	100	75	56	26	3	48	1 9/16"-16	8	20	M6	85	19	32	4,5	<b>SAH02205</b>
	353	27	100	75	56	26	3	48	1 9/16"-16	8	20	M6	85	19	32	5,8	<b>SAH02210</b>
	473	27	100	75	56	26	3	48	1 9/16"-16	8	20	M6	85	19	32	7,0	<b>SAH02215</b>
	260	34	130	90	68	32	4	55	1 11/13"-16	9	22	M6	110	19	44	7,5	<b>SAH03005</b>
	378	34	130	90	68	32	4	55	1 11/13"-16	9	22	M6	110	19	44	10,0	<b>SAH03010</b>
	500	34	130	90	68	32	4	55	1 11/13"-16	9	22	M6	110	19	44	11,5	<b>SAH03015</b>
	293	56	175	125	95	37	4	80	2 3/4"-16	12	22	M6	155	19	84	16,3	<b>SAH06005</b>
	398	56	175	125	95	37	4	80	2 3/4"-16	12	22	M6	155	19	84	19,5	<b>SAH06010</b>
	513	56	175	125	95	37	4	80	2 3/4"-16	12	22	M6	155	19	84	23,4	<b>SAH06015</b>
	310	81	235	170	130	40	6	116	4"-16	13	25	M6	215	19	148	31,0	<b>SAH10005</b>
	427	81	235	170	130	40	6	116	4"-16	13	25	M6	215	19	148	38,0	<b>SAH10010</b>
	547	81	235	170	130	40	6	116	4"-16	13	25	M6	215	19	148	45,0	<b>SAH10015</b>

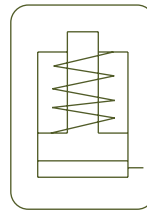
**SINGLE ACTING LOW HEIGHT CYLINDERS, SPRING RETURN**



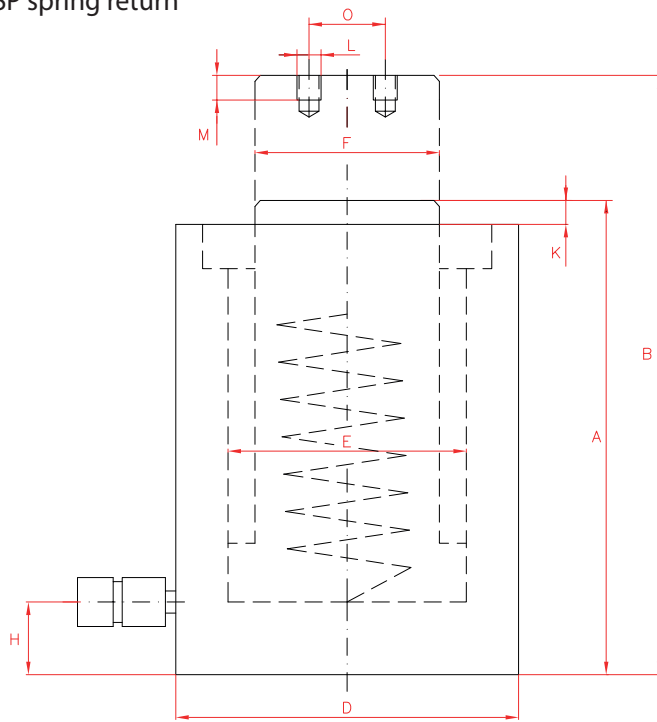
- ✓ Low height hydraulic cylinders with a capacity from 10 to 95 ton, stroke up to 62 mm, rated for 700 bar.
- ✓ Low profile for use in confined spaces: machinery positioning, tool fastening, load tests.
- ✓ Nickel plated piston with wiper seal to extend cylinder life.
- ✓ Optional tilt saddles available.
- ✓ Strong spring for improved retraction time.

Capacity		Stroke	Model	Oil Cap.	A	B	D	E	F	H	K
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm	mm	mm	mm	mm	mm	mm
10	101	38	SSP01004	55	88	126	69	42,9	38,1	17	5
20	201	45	SSP02004	129	98	143	92	60,5	50,8	17	3
30	295	62	SSP03006	261	117	179	101	73,2	66,5	19	3
45	435	60	SSP05006	373	122	182	124	88,9	69,8	23	2
90	887	57	SSP10006	722	141	198	165	127,0	92,2	31	1





SSP spring return



	L	M	O	Area	Weight	Model	With tilting saddle	
	mm	mm	mm	cm <sup>2</sup>	kg	LARZEP	A	Model
	M4	8	26	14,5	2,7	SSP01004	108	CATS13
	M5	8	40	28,7	5,0	SSP02004	124	CATS53
	M5	8	40	42,1	6,8	SSP03006	143	CATS53
	M5	8	40	62,1	10,0	SSP05006	148	CATS53
	M8	10	55	126,7	20,7	SSP10006	176	CATS103

SINGLE ACTING CYLINDERS



Type	<b>SSP</b>
Capacity	10 - 95 ton
Stroke	38 - 62 mm
Max. pressure	700 bar

SSP CYLINDERS

J  
Cylinder and pump sets



P.60

SSX  
Single Acting Low Profile Cylinders



P.24

AZ3  
Coupler inclined 10°



P.86

CATS  
Optional Tilting Saddles



P.89



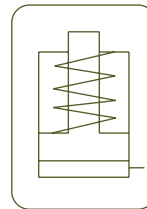
**SINGLE ACTING LOW PROFILE CYLINDERS, SPRING RETURN**

- ✓ Low height hydraulic cylinders with a capacity from 4 to 145 ton, stroke up to 16 mm, rated for 700 bar.
- ✓ For use in confined spaces: machinery positioning, tool fastening.
- ✓ With two parallel faces for horizontal operation.
- ✓ Mounting bolt holes for easy fixing.
- ✓ Nickel plated piston with wiper seal to extend cylinder life.
- ✓ Strong spring to improve retraction time.

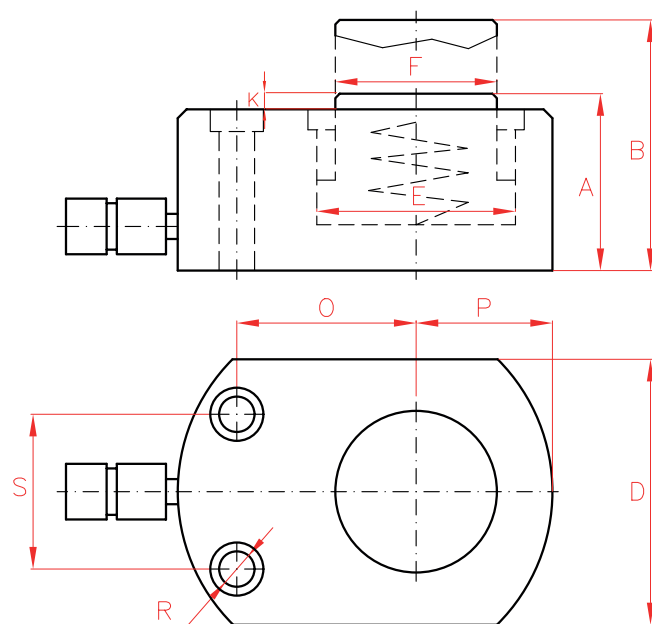
**W**  
Single Acting Hand Pumps

P.66





SSX spring return



**SINGLE ACTING CYLINDERS**



Type	<b>SSX</b>
Capacity	<b>5 - 150 ton</b>
Stroke	<b>6 - 16 mm</b>
Max. pressure	<b>700 bar</b>

SSX CYLINDERS

**SSP**  
Low Height Single Acting Cylinders



P.22

**CTX**  
Single Acting Pancake Locknut Cylinders



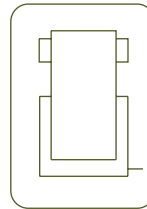
P.32

Capacity		Stroke	Model	Oil Cap.	A	B	D	E	F	H	K	O	P	R	S	Area	Weight
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	cm <sup>2</sup>	kg
<b>5</b>	<b>45</b>	6	<b>SSX00406</b>	4	32	38	58 x 41	28,7	25,4	16	1	22	20	5,5	28,5	6,5	1,0
		16	<b>SSX00416</b>	10	41	57	58 x 41	28,7	25,4	19	1	22	20	5,5	28,5	6,5	1,0
<b>10</b>	<b>101</b>	11	<b>SSX01011</b>	18	43	54	82 x 55	42,9	38,1	19	1	34	27	7,1	36,6	14,5	1,4
<b>20</b>	<b>201</b>	11	<b>SSX02211</b>	32	51	62	101 x 76	60,5	50,8	19	1	39	39	10,0	49,3	28,7	3,1
<b>30</b>	<b>295</b>	13	<b>SSX03013</b>	55	58	71	117 x 95	73,2	63,4	19	2	44	47	10,0	52,3	42,1	4,5
<b>45</b>	<b>435</b>	16	<b>SSX05016</b>	99	66	82	140 x 114	88,9	69,8	19	2	53	57	11,0	66,5	62,1	6,8
<b>75</b>	<b>718</b>	16	<b>SSX07516</b>	164	79	95	165 x 139	114,3	82,6	19	2	66	69	13,5	76,2	102,6	11,3
<b>90</b>	<b>887</b>	16	<b>SSX10016</b>	203	85	101	178 x 153	127,0	92,2	19	2	74	76	13,5	76,2	126,7	14,5
<b>150</b>	<b>1.386</b>	16	<b>SSX15016</b>	317	100	116	215 x 190	158,8	114,3	23	2	82	95	13,5	117,3	198,1	26,3

## SINGLE ACTING LOCKNUT CYLINDERS, LOAD RETURN



- ✓ Capacities from 50 to 1000 ton, stroke up to 300mm
- ✓ The locknut holds the load mechanically for extended periods of time
- ✓ Nickel plated piston to extend cylinder life
- ✓ Optional tilt saddles available
- ✓ Hydraulic end of stroke overflow port
- ✓ Used for foundation supporting, bridge construction and shipbuilding
- ✓ For confined spaces, use **CTX** models



S/A LOCKNUT CYLINDERS



Type	<b>CTC</b>
Capacity	50 - 1.000 ton
Stroke	50 - 300 mm
Max. pressure	700 bar

**CATS**  
Optional Tilting Saddles available

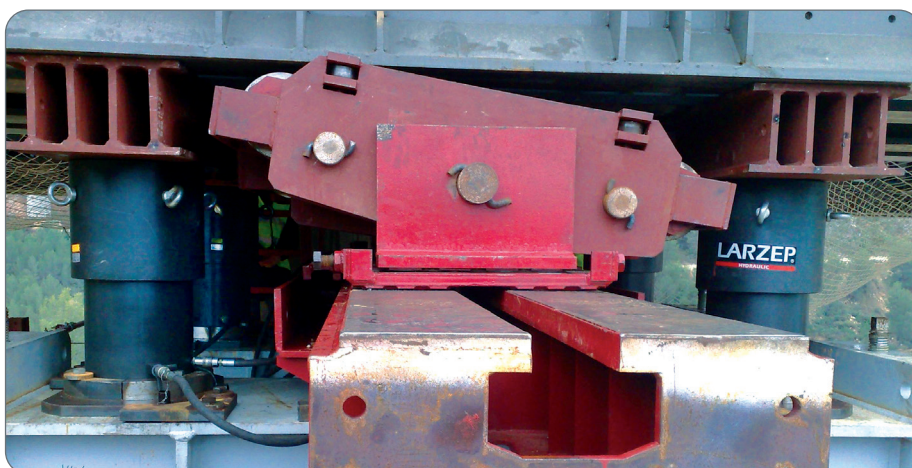


P.89

**CTX**  
Single Acting Pancake Locknut Cylinders



P.32





**AZ3**

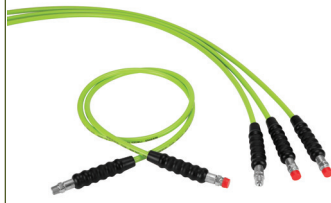
Coupler 3/8"-18 NPT included



P.84

**AP2**

Hoses



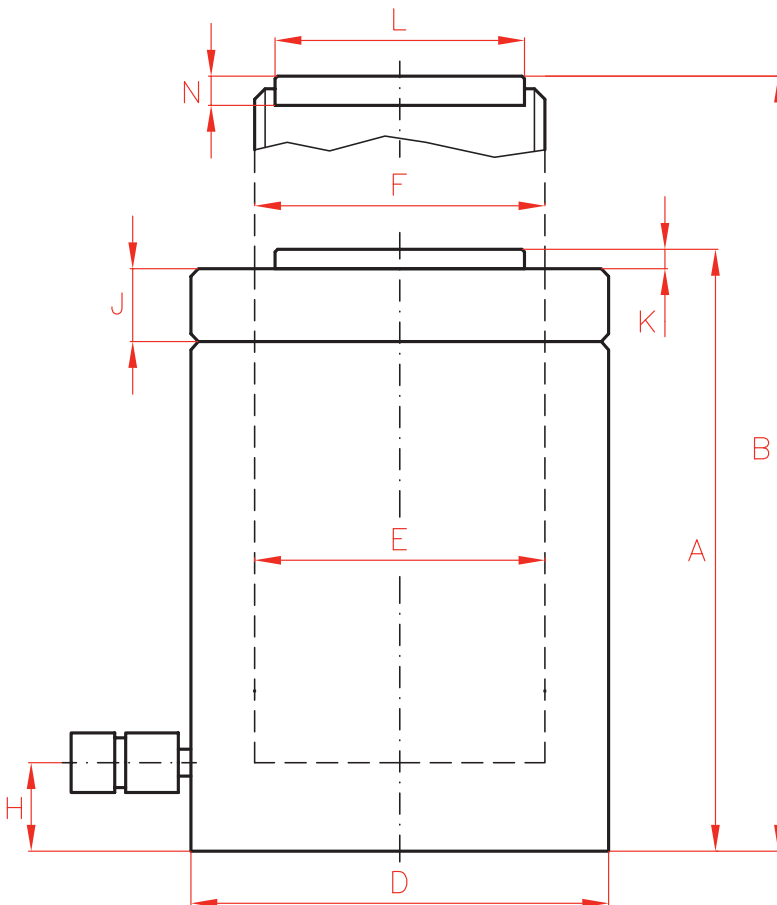
P.83

**AV**

Pressure Gauges



P.92



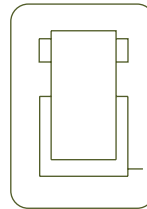
Capacity		Stroke	Model	Oil Cap.	A
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm
50	496	50	<b>CTC05005</b>	355	164
		100	<b>CTC05010</b>	709	214
		150	<b>CTC05015</b>	1064	264
		300	<b>CTC05030</b>	2127	414
100	929	50	<b>CTC10005</b>	664	187
		100	<b>CTC10010</b>	1327	237
		150	<b>CTC10015</b>	1991	287
		300	<b>CTC10030</b>	3981	437
150	1.390	50	<b>CTC15005</b>	993	209
		100	<b>CTC15010</b>	1986	259
		150	<b>CTC15015</b>	2979	309
		300	<b>CTC15030</b>	5958	459
200	1.859	50	<b>CTC20005</b>	1330	243
		150	<b>CTC20015</b>	3989	343
		300	<b>CTC20030</b>	7995	493
250	2.562	50	<b>CTC25005</b>	1832	249
		150	<b>CTC25015</b>	5496	349
		300	<b>CTC25030</b>	10995	499
300	3.193	50	<b>CTC30005</b>	2281	295
		150	<b>CTC30015</b>	6843	395
		300	<b>CTC30030</b>	13740	545
500	5.118	50	<b>CTC50005</b>	3653	375
		150	<b>CTC50015</b>	10959	475
		300	<b>CTC50030</b>	21930	625
600	5.983	50	<b>CTC60005</b>	4277	395
		150	<b>CTC60015</b>	12830	495
		300	<b>CTC60030</b>	25650	645
800	8.238	50	<b>CTC80005</b>	5882	455
		150	<b>CTC80015</b>	17645	555
		300	<b>CTC80030</b>	35370	705
1.000	10.260	50	<b>CTC100005</b>	7329	495
		150	<b>CTC100015</b>	21986	595
		300	<b>CTC100030</b>	43980	745



**W**  
Single Acting Hand Pumps



P.66



**S/A LOCKNUT CYLINDERS**



Type **CTC**

Capacity **30 - 1.000 ton**

Stroke **50 - 300 mm**

CTC CYLINDERS

	B	D	E	F	H	J	K	L	N	Area	Weight	Model	With tilting saddle	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	cm <sup>2</sup>	kg	LARZEP	A	Model
	214	125	95,0	Tr 95 x 4	30	36	2	71	15	70,9	15	<b>CTC05005</b>	179	CATS100
	314	125	95,0	Tr 95 x 4	30	36	2	71	15	70,9	20	<b>CTC05010</b>	229	CATS100
	414	125	95,0	Tr 95 x 4	30	36	2	71	15	70,9	25	<b>CTC05015</b>	279	CATS100
	714	125	95,0	Tr 95 x 4	30	36	2	71	15	70,9	40	<b>CTC05030</b>	429	CATS100
	237	165	130,0	Tr 130 x 6	30	44	2	71	15	132,7	30	<b>CTC10005</b>	202	CATS100
	337	165	130,0	Tr 130 x 6	30	44	2	71	15	132,7	39	<b>CTC10010</b>	252	CATS100
	437	165	130,0	Tr 130 x 6	30	44	2	71	15	132,7	48	<b>CTC10015</b>	302	CATS100
	737	165	130,0	Tr 130 x 6	30	44	2	71	15	132,7	73	<b>CTC10030</b>	452	CATS100
	259	205	159,0	Tr 159 x 6	39	44	2	130	27	198,6	53	<b>CTC15005</b>	225	CATS201
	359	205	159,0	Tr 159 x 6	39	44	2	130	27	198,6	66	<b>CTC15010</b>	275	CATS201
	459	205	159,0	Tr 159 x 6	39	44	2	130	27	198,6	78	<b>CTC15015</b>	325	CATS201
	759	205	159,0	Tr 159 x 6	39	44	2	130	27	198,6	117	<b>CTC15030</b>	475	CATS201
	293	235	184,0	Tr 184 x 6	50	50	2	130	27	265,6	83	<b>CTC20005</b>	259	CATS201
	493	235	184,0	Tr 184 x 6	50	50	2	130	27	265,6	117	<b>CTC20015</b>	359	CATS201
	793	235	184,0	Tr 184 x 6	50	50	2	130	27	265,6	170	<b>CTC20030</b>	509	CATS201
	299	275	216,0	Tr 216 x 6	50	56	2	150	27	366,1	116	<b>CTC25005</b>	288	CATS251
	499	275	216,0	Tr 216 x 6	50	56	2	150	27	366,1	162	<b>CTC25015</b>	388	CATS251
	799	275	216,0	Tr 216 x 6	50	56	2	150	27	366,1	234	<b>CTC25030</b>	538	CATS251
	345	310	241,0	Tr 241 x 6	59	60	5	139	30	456,2	173	<b>CTC30005</b>	334	-
	545	310	241,0	Tr 241 x 6	59	60	5	139	30	456,2	233	<b>CTC30015</b>	434	-
	845	310	241,0	Tr 241 x 6	59	60	5	139	30	456,2	323	<b>CTC30030</b>	584	-
	425	400	305,0	Tr 305 x 6	80	80	5	179	30	731,1	367	<b>CTC50005</b>	423	CATS500
	625	400	305,0	Tr 305 x 6	80	80	5	179	30	731,1	466	<b>CTC50015</b>	523	CATS500
	925	400	305,0	Tr 305 x 6	80	80	5	179	30	731,1	617	<b>CTC50030</b>	673	CATS500
	445	430	330,0	Tr 330 x 6	85	85	5	194	30	854,8	446	<b>CTC60005</b>	448	CATS600
	645	430	330,0	Tr 330 x 6	85	85	5	194	30	854,8	562	<b>CTC60015</b>	548	CATS600
	945	430	330,0	Tr 330 x 6	85	85	5	194	30	854,8	737	<b>CTC60030</b>	698	CATS600
	505	505	387,0	Tr 387 x 6	100	100	5	224	30	1176,9	709	<b>CTC80005</b>	512	CATS800
	705	505	387,0	Tr 387 x 6	100	100	5	224	30	1176,9	870	<b>CTC80015</b>	612	CATS800
	1005	505	387,0	Tr 387 x 6	100	100	5	224	30	1176,9	1110	<b>CTC80030</b>	762	CATS800
	545	560	432,0	Tr 432 x 6	110	110	5	249	30	1466,4	949	<b>CTC100005</b>	572	CATS1000
	745	560	432,0	Tr 432 x 6	110	110	5	249	30	1466,4	1141	<b>CTC100015</b>	672	CATS1000
	1045	560	432,0	Tr 432 x 6	110	110	5	249	30	1466,4	1430	<b>CTC100030</b>	822	CATS1000

**SINGLE ACTING PANCAKE LOCKNUT CYLINDERS, LOAD RETURN**

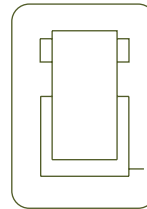
- ✓ Capacities from 50 to 500 ton, stroke up to 50mm
- ✓ The locknut holds the load mechanically for extended periods of time
- ✓ Nickel plated piston with wiper seal to extend cylinder life.
- ✓ Built-in tilting saddle as standard to improve side-load resistance
- ✓ Hydraulic end of stroke overflow port.
- ✓ Used for foundation supporting, bridge construction and shipbuilding
- ✓ For longer strokes, use **CTC** models



**CTC**  
Single Acting Locknut Cylinders



P.26



**S/A LOCKNUT CYLINDERS**



Type	<b>CTX</b>
Capacity	<b>60 - 500 ton</b>
Stroke	<b>45 - 50 mm</b>
Max. pressure	<b>700 bar</b>

CTX CYLINDERS

**CTX**  
Built-in Tilting Saddle

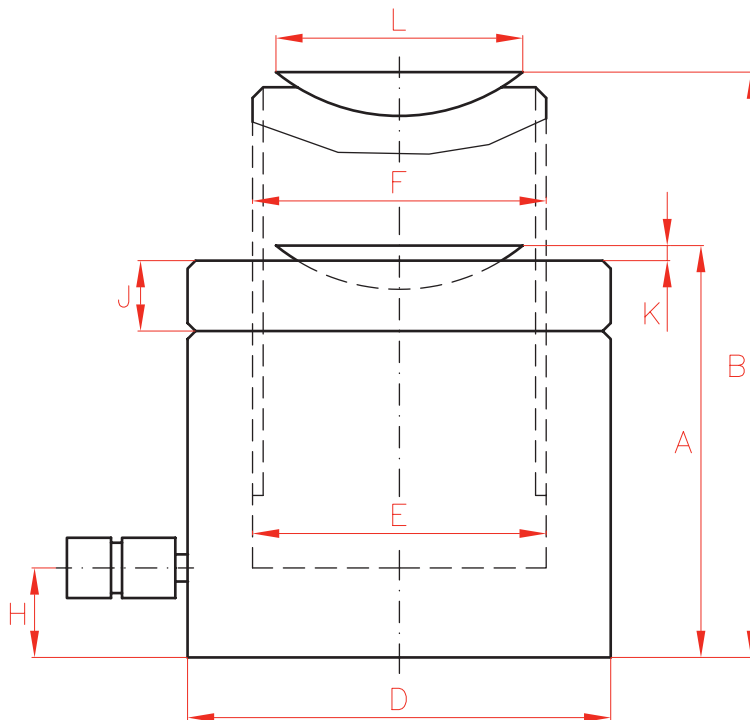


P.32

**SSX**  
Single Acting Low Profile Cylinders,  
Spring Return



P.24



Capacity		Stroke	Model	Oil Cap.	A	B	D	E	F	H	J	K	L	Area	Weight
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm	mm	mm	mm	mm	mm	mm	mm	mm	cm <sup>2</sup>	kg
60	606	50	CTX06005	432	125	175	140	105,0	Tr 104 x 4	19	28	6	96	86,6	15
100	1.027	50	CTX10005	734	137	187	175	136,7	Tr 136 x 6	21	31	8	126	146,8	26
160	1.619	45	CTX16004	1040	148	193	220	171,6	Tr 171 x 6	27	40	9	160	231,3	44
200	1.999	45	CTX20004	1285	155	200	245	190,7	Tr 190 x 6	30	43	10	180	285,6	57
260	2.567	45	CTX25004	1650	159	204	275	216,1	Tr 216 x 6	32	44	11	200	366,8	74
400	3.916	45	CTX40004	2517	178	223	350	266,9	Tr 266 x 6	39	55	11	250	559,5	134
500	5.114	45	CTX50004	3287	192	237	400	305,0	Tr 305 x 6	48	62	10	290	730,6	189



**SINGLE ACTING CYLINDERS, LOAD RETURN**

- ✓ Capacities from 50 to 1000 ton, stroke up to 300mm
- ✓ Nickel plated piston to extend cylinder life.
- ✓ Optional tilt saddles available
- ✓ Load return, for weighing, lifting and positioning applications in civil engineering
- ✓ For confined spaces and loads up to 150 ton, use the SSP and SSX cylinder lines
- ✓ End of stroke stoping to prevent piston blow out

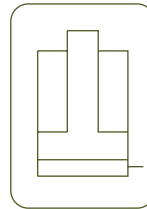
**SSX**  
Single Acting Low Profile Cylinders

P.24

**SSP**  
Low Height Single Acting Cylinders

P.22





S/A LOAD RETURN CYLINDERS



Type	<b>CPC</b>
Capacity	50 - 1.000 ton
Stroke	50 - 300 mm
Max. pressure	700 bar

CPC CYLINDERS



**CDC**  
Double Acting High Tonnage Cylinders



P.44

**HBM / HBE**  
Powerpacks



P.72



**HBM / HBE**  
Powerpacks



P.72

**Z22107**  
Air Hydraulic Pumps

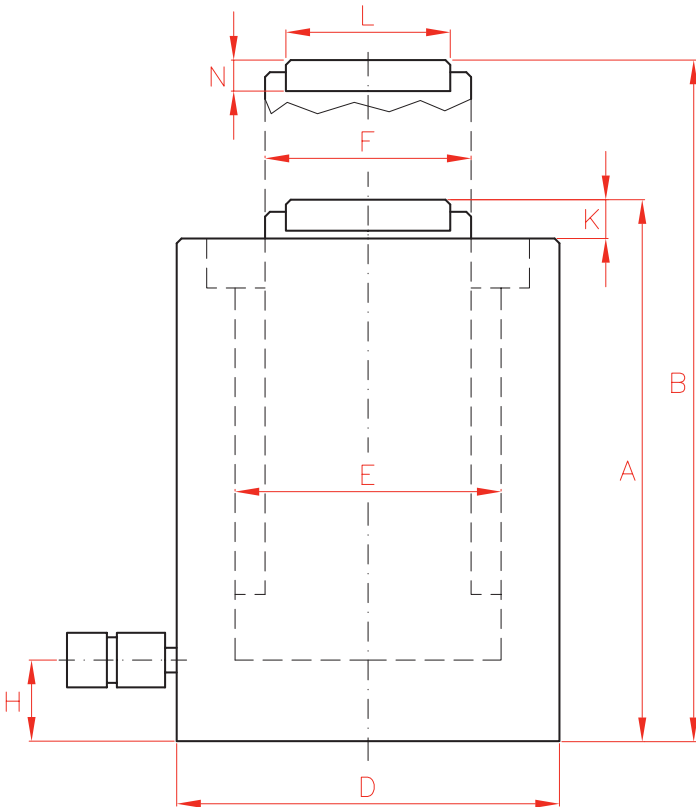


P.70

**W**  
Single Acting Hand Pumps

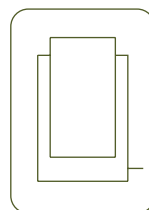


P.66



Capacity		Stroke	Model	Oil Cap.	A
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm
50	539	50	CPC05005	385	162
		150	CPC05015	1155	262
		300	CPC05030	2309	412
100	929	50	CPC10005	664	179
		150	CPC10015	1991	279
		300	CPC10030	3982	429
150	1.390	50	CPC15005	993	196
		150	CPC15015	2978	296
		300	CPC15030	5957	446
200	1.861	50	CPC20005	1330	212
		150	CPC20015	3989	312
		300	CPC20030	7977	462
250	2.565	50	CPC25005	1832	235
		150	CPC25015	5497	335
		300	CPC25030	10993	485
300	3.193	50	CPC30005	2281	322
		150	CPC30015	6843	422
		300	CPC30030	13685	572
500	5.114	50	CPC50005	3653	360
		150	CPC50015	10959	460
		300	CPC50030	21918	610
600	5.987	50	CPC60005	4276	360
		150	CPC60015	12829	460
		300	CPC60030	25659	610
800	8.234	50	CPC80005	5881	395
		150	CPC80015	17644	495
		300	CPC80030	35288	645
1.000	10.260	50	CPC100005	7329	421
		150	CPC100015	21986	521
		300	CPC100030	43972	671





S/A LOAD RETURN CYLINDERS



Type **CPC**

Capacity **50 - 1.000 ton**

Stroke **50 - 300 mm**

Max. pressure **700 bar**

CPC CYLINDERS

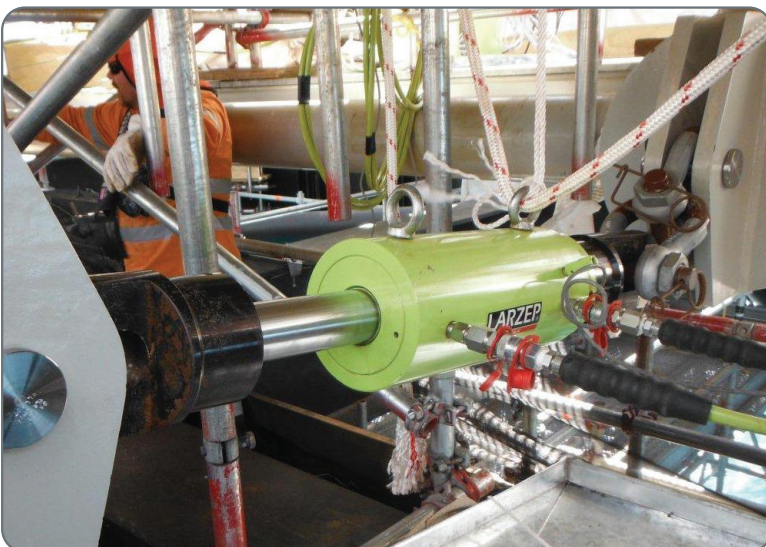
	B	D	E	F	H	K	L	N	Area	Weight	Model	With tilting saddle	
	mm	mm	mm	mm	mm	mm	mm	mm	cm <sup>2</sup>	kg	LARZEP	A	Model
	212	130	99	70	52	1	50	20	77,0	17	CPC05005	176	CATS50
	412	130	99	70	52	1	50	20	77,0	23	CPC05015	276	CATS50
	712	130	99	70	52	1	50	20	77,0	34	CPC05030	426	CATS50
	229	165	130	95	54	1	75	20	132,7	29	CPC10005	189	CATS101
	429	165	130	95	54	1	75	20	132,7	40	CPC10015	289	CATS101
	729	165	130	95	54	1	75	20	132,7	58	CPC10030	439	CATS101
	246	205	159	114	61	1	94	20	198,6	39	CPC15005	215	CATS150
	446	205	159	114	61	1	94	20	198,6	65	CPC15015	315	CATS150
	746	205	159	114	61	1	94	20	198,6	105	CPC15030	465	CATS150
	262	235	184	133	67	1	113	25	265,9	55	CPC20005	230	CATS200
	462	235	184	133	67	1	113	25	265,9	91	CPC20015	330	CATS200
	762	235	184	133	67	1	113	25	265,9	146	CPC20030	480	CATS200
	285	275	216	165	73	1	145	25	366,4	89	CPC25005	274	CATS250
	485	275	216	165	73	1	145	25	366,4	136	CPC25015	374	CATS250
	785	275	216	165	73	1	145	25	366,4	207	CPC25030	524	CATS250
	372	310	241	197	101	1	177	20	456,2	184	CPC30005	361	CATS301R
	572	310	241	197	101	1	177	20	456,2	232	CPC30015	461	CATS301R
	872	310	241	197	101	1	177	20	456,2	303	CPC30030	611	CATS301R
	410	400	305	248	114	3	228	30	730,6	379	CPC50005	408	CATS501R
	610	400	305	248	114	3	228	30	730,6	468	CPC50015	508	CATS501R
	910	400	305	248	114	3	228	30	730,6	601	CPC50030	658	CATS501R
	410	430	330	267	114	3	247	30	855,3	438	CPC60005	413	CATS601R
	610	430	330	267	114	3	247	30	855,3	540	CPC60015	513	CATS601R
	910	430	330	267	114	3	247	30	855,3	693	CPC60030	663	CATS601R
	445	505	387	317	149	3	297	30	1176,3	665	CPC80005	452	CATS801R
	645	505	387	317	149	3	297	30	1176,3	809	CPC80015	552	CATS801R
	945	505	387	317	149	3	297	30	1176,3	1023	CPC80030	702	CATS801R
	471	560	432	343	174	3	323	30	1465,7	872	CPC100005	498	CATS1001R
	671	560	432	343	174	3	323	30	1465,7	1047	CPC100015	598	CATS1001R
	971	560	432	343	174	3	323	30	1465,7	1305	CPC100030	748	CATS1001R



**PULL CYLINDERS**



- ✓ Capacities from 10 to 50 ton, and 150 mm stroke.
- ✓ TE models are Spring Return.
- ✓ TD models are Double Acting.
- ✓ For pulling applications: to hook and join plates for welding, tensioning cables, etc.



Capacity		Stroke	Model	Oil Cap.	A
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm
10	93	150	TE01015	204	559
		150	TD01015	356	559
30	302	150	TE03015	660	723
		150	TD03015	954	723
50	483	150	TE05015	1.056	757
		150	TD05015	1.425	757

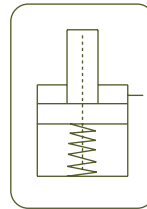


W - X

Single and Double Acting Hand Pumps



P.66



PULL CYLINDERS



Type

TE - TD

Capacity

10 - 50 ton

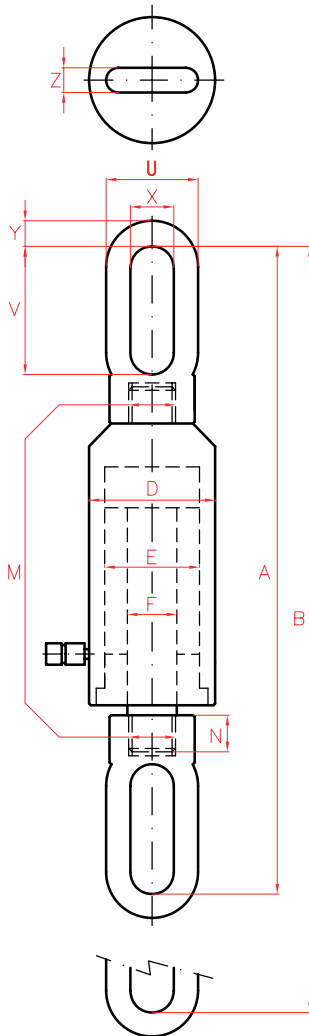
Stroke

150 mm

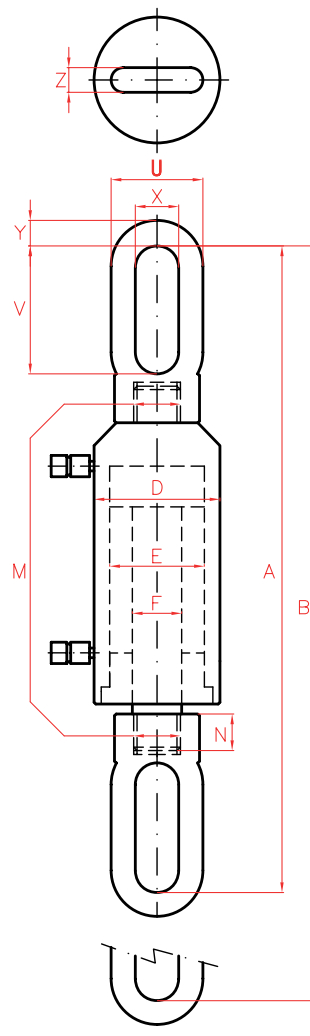
Max. pressure

700 bar

TE - TD CYLINDERS



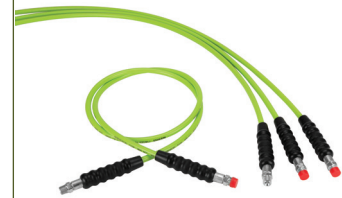
TE



TD

AP2

Hoses



P.83

AV

Pressure Gauges



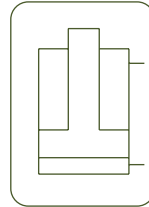
P.92

	B	D	E	F	M	N	U	V	X	Y	Z	Area	Weight	Model
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	cm <sup>2</sup>	kg	LARZEP
	709	86	55	36	M30x2	25	64	119	34	32	22	13,5	14,9	TE01015
	709	86	55	36	M30x2	25	64	119	34	32	22	13,5	14,9	TD01015
	873	125	90	50	1.25-7 UN	35	114	155	40	57	35	43,9	32,0	TE03015
	873	125	90	50	1.25-7 UN	35	114	155	40	57	35	43,9	32,0	TD03015
	907	148	110	56	M52x2	60	130	150	50	70	39	70,3	60,0	TE05015
	907	148	110	56	M52x2	60	130	150	50	70	39	70,3	60,0	TD05015

**DOUBLE ACTING CYLINDERS**

- ✓ Capacities from 10 to 550 ton, strokes up to 320 mm as standard.
- ✓ For push and pull applications.
- ✓ For heavy-duty applications, high precision and involving high-cycle life.
- ✓ Guide and sealing system of highest quality.
- ✓ Safety valve on the retract side to prevent accidental over-pressure.
- ✓ Collar threads, piston end threads and base mounting holes for easy fixing and pull operations.
- ✓ Compatible with SSM accessories.
- ✓ Longer stroke models up to 1.500 mm upon request.





**DOUBLE ACTING CYLINDERS**



Type	<b>D</b>
Capacity	10 - 550 ton
Stroke	50 - 320 mm
Max. pressure	700 bar

D CYLINDERS

**SSM & D**  
Special attachments for SSM and D models



P.10

**DDA**  
Double Acting Aluminium Cylinders



P.48

**DDC**  
Double Acting High Tonnage Cylinders

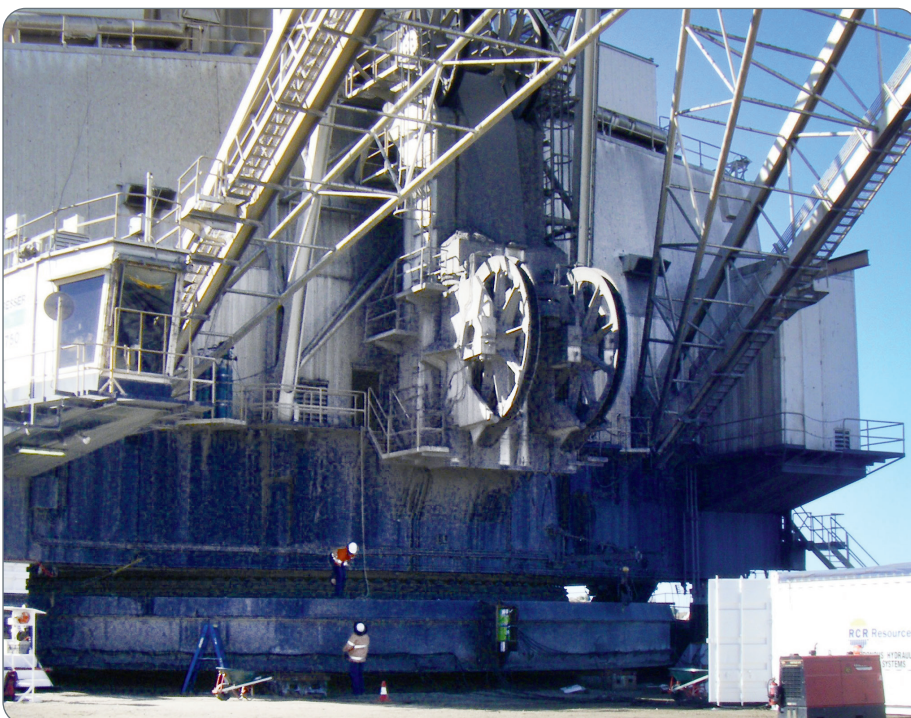


P.44

**AZ04**  
Optional Tilting Saddles available



P.89





**HBM / HBE**  
Powerpack



P.72

**Z22107**  
Air Hydraulic Pump



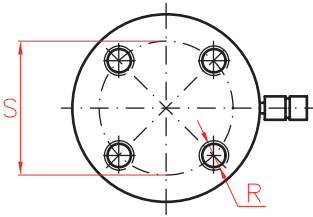
P.70

**X**  
Double Acting Hand Pumps

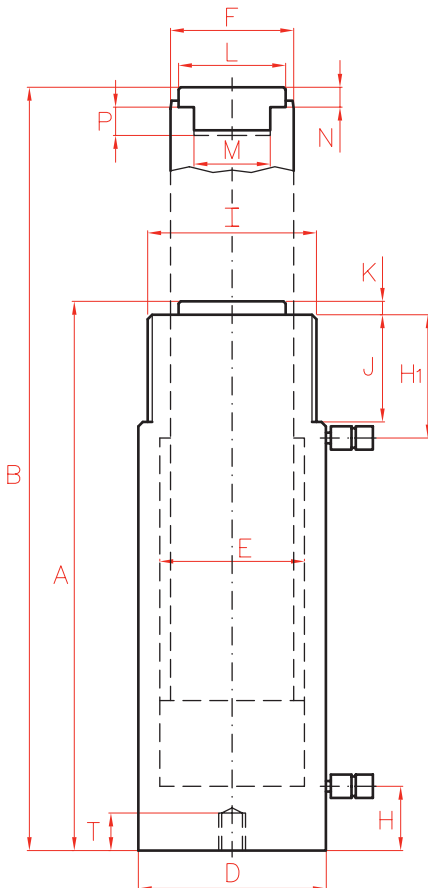
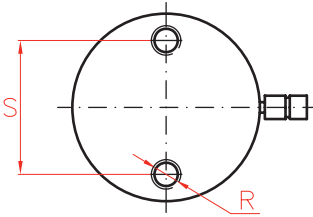


P.66

**Models from 50 to 550 ton**



**Models up to 30 ton**

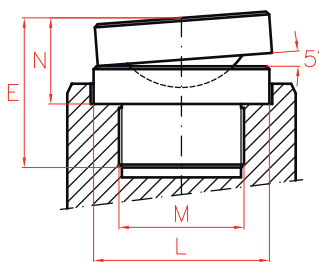


Capacity ton	Stroke mm	Model LARZEP	Capacity (kN)		Oil Cap. cm <sup>3</sup>	A mm	B mm	D mm	E mm	F mm
			Push	Pull						
10	160	D01016	109	20	255	310	470	60	45	36
	250	D01025	109	20	398	400	650	60	45	36
	320	D01032	109	20	509	470	790	60	45	36
20	160	D02016	214	53	499	320	480	83	63	45
	250	D02025	214	53	779	410	660	83	63	45
	320	D02032	214	53	997	480	800	83	63	45
30	160	D03016	303	68	707	335	495	100	75	56
	320	D03032	303	68	1.413	495	815	100	75	56
50	160	D05016	486	72	1.134	335	495	127	95	80
	320	D05032	486	72	2.267	510	830	127	95	80
75	160	D07516	712	140	1.661	338	498	150	115	90
	320	D07532	712	140	3.322	512	832	150	115	90
100	160	D10016	911	189	2.123	339	499	177	130	100
	320	D10032	911	189	4.245	509	829	177	130	100
150	50	D15005	1.380	370	1.005	258	308	215	160	110
	150	D15015	1.380	370	3.015	378	528	215	160	110
	300	D15030	1.380	370	6.029	528	828	215	160	110
200	50	D20005	2.156	560	1.570	274	324	265	200	140
	150	D20015	2.156	560	4.710	394	544	265	200	140
	300	D20030	2.156	560	9.420	544	844	265	200	140
350	50	D35005	3.368	1.014	2.454	299	349	330	250	160
	150	D35015	3.368	1.014	7.359	419	569	330	250	160
	300	D35030	3.368	1.014	14.718	569	869	330	250	160
550	50	D55005	5.519	1.714	4.020	383	433	430	320	200
	150	D55015	5.519	1.714	12.058	518	668	430	320	200
	300	D55030	5.519	1.714	24.116	668	968	430	320	200



OPTIONAL TILTING SADDLES

Model	L	M	N	E	Weight
LARZEP	mm	UN	mm	mm	kg
AZ0420	28	1"-8	29	43	0,2
AZ0423	35	1"-8	29	49	0,3
AZ0421	45	1 1/2"-16	28	50	0,4
AZ0422	61	1 3/4"-12	38	58	0,7
AZ0424	88	2 1/2"-12	47	82	2,5
AZ0425	111	2 1/2"-12	52	107	4,5



P.89

DOUBLE ACTING CYLINDERS



Type

D

Capacity

10 - 550 ton

Stroke

50 - 320 mm

Max. pressure

700 bar

H	H1	I	J	K	L	M	N	P	R	S	T	Area	Weight	Model	With tilting saddle	
mm	mm	UN	mm	mm	mm	UN	mm	mm	UN	mm	mm	cm <sup>2</sup>	kg	LARZEP	A	Model
20	53,5	2 1/4"-14	32	7	28	1"-8	10	24	5/16"-18	39	12	16	6,4	D01016	329	AZ0420
20	53,5	2 1/4"-14	32	7	28	1"-8	10	24	5/16"-18	39	12	16	8,0	D01025	419	AZ0420
20	53,5	2 1/4"-14	32	7	28	1"-8	10	24	5/16"-18	39	12	16	9,5	D01032	489	AZ0420
20	60	3 1/4"-12	40	8	35	1"-8	8	24	1/2"-13	58	15	31	11,7	D02016	341	AZ0423
20	60	3 1/4"-12	40	8	35	1"-8	8	24	1/2"-13	58	15	31	14,5	D02025	431	AZ0423
20	60	3 1/4"-12	40	8	35	1"-8	8	24	1/2"-13	58	15	31	16,8	D02032	501	AZ0423
26	77	3 7/8"-12	48	10	45	1 1/2"-16	10	25	1/2"-13	66	15	44	18,9	D03016	353	AZ0421
26	77	3 7/8"-12	48	10	45	1 1/2"-16	10	25	1/2"-13	66	15	44	26,6	D03032	513	AZ0421
28	70	5"-12	50	10	61	1 3/4"-12	10	25	1/2"-13	95	15	71	30,8	D05016	363	AZ0422
28	85	5"-12	50	10	61	1 3/4"-12	10	25	1/2"-13	95	15	71	44,8	D05032	538	AZ0422
30	70	5 3/4"-12	50	10	61	1 3/4"-12	10	25	1/2"-13	100	18	104	42,0	D07516	366	AZ0422
30	80	5 3/4"-12	50	10	61	1 3/4"-12	10	25	1/2"-13	100	18	104	60,6	D07532	540	AZ0422
38	70	6 7/8"-12	50	10	88	1 3/4"-12	16	30	3/4"-10	139	18	133	51,8	D10016	361	AZ0422
38	84	6 7/8"-12	50	10	88	1 3/4"-12	16	30	3/4"-10	139	18	133	84,1	D10032	531	AZ0422
49	85	8"-12	55	10	88	2 1/2"-12	15	40	3/4"-16	158	25	201	66,0	D15005	279	AZ0424
49	85	8"-12	55	10	88	2 1/2"-12	15	40	3/4"-16	158	25	201	90,0	D15015	410	AZ0424
49	85	8"-12	55	10	88	2 1/2"-12	15	40	3/4"-16	158	25	201	119,0	D15030	560	AZ0424
65	85	9 3/4"-12	55	10	111	2 1/2"-12	19	60	1"-8	127	25	314	105,0	D20005	307	AZ0425
65	85	9 3/4"-12	55	10	111	2 1/2"-12	19	60	1"-8	127	25	314	151,0	D20015	427	AZ0425
65	85	9 3/4"-12	55	10	111	2 1/2"-12	19	60	1"-8	127	25	314	191,0	D20030	577	AZ0425
85	90	12 1/4"-12	60	10	131	3"-12	15	70	1 1/4"-7	158	40	491	189,0	D35005	-	-
85	90	12 1/4"-12	60	10	131	3"-12	15	70	1 1/4"-7	158	40	491	247,0	D35015	-	-
85	90	12 1/4"-12	60	10	131	3"-12	15	70	1 1/4"-7	158	40	491	346,0	D35030	-	-
110	120	15 5/8"-8	80	15	178	4"-12	26	85	1 3/4"-5	203	55	804	396,0	D55005	-	-
110	120	15 5/8"-8	80	15	178	4"-12	26	85	1 3/4"-5	203	55	804	504,0	D55015	-	-
110	120	15 5/8"-8	80	15	178	4"-12	26	85	1 3/4"-5	203	55	804	625,0	D55030	-	-

**DOUBLE ACTING CYLINDERS**



- ✓ Capacities from 50 to 1000 ton, stroke up to 300mm
- ✓ Hydraulic return improves retraction speed and control
- ✓ Nickel plated piston to extend cylinder life.
- ✓ Optional tilt saddles available
- ✓ Built-in safety valve to prevent accidental overpressure

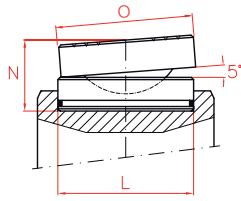


Capacity		Stroke	Model	Oil Cap.	A
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm
50	539	50	CDC05005	385	162
		150	CDC05015	1.155	262
		300	CDC05030	2.309	412
100	929	50	CDC10005	664	179
		150	CDC10015	1.991	279
		300	CDC10030	3.982	429
150	1.390	50	CDC15005	993	196
		150	CDC15015	2.978	296
		300	CDC15030	5.957	446
200	1.861	50	CDC20005	1.330	212
		150	CDC20015	3.989	312
		300	CDC20030	7.977	462
250	2.565	50	CDC25005	1.832	235
		150	CDC25015	5.497	335
		300	CDC25030	10.993	485

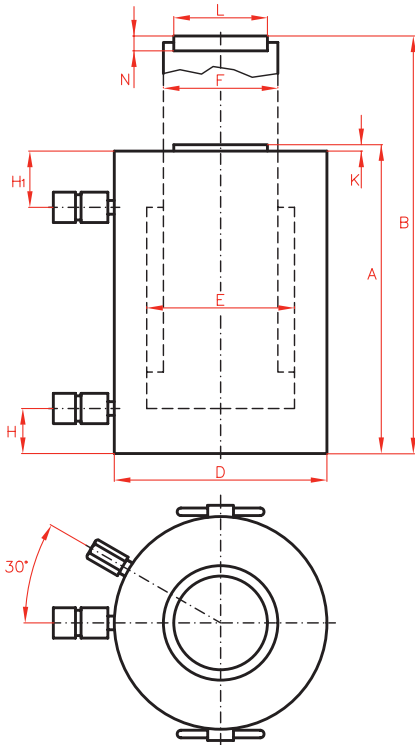
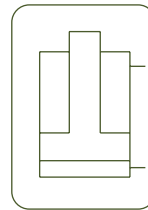


OPTIONAL TILTING SADDLES

Model	L	N	O	Weight
LARZEP	mm	mm	mm	kg
CATS50	50	34	71	1,0
CATS101	75	30	71	1,6
CATS150	94	39,2	97	3,0
CATS200	113	43,0	126	4,4
CATS300	140	68,5	175	10,3



P.89



Type	<b>CDC</b>
Capacity	<b>50 - 1.000 ton</b>
Stroke	<b>50 - 300 mm</b>
Max. pressure	<b>700 bar</b>

CDC CYLINDERS

DDA Aluminium Double Acting Cylinders



P.48

HBM / HBE Powerpacks



P.72

B	D	E	F	H	H1	K	L	N	Area	Weight	Model	With tilting saddle	
mm	mm	mm	mm	mm	mm	mm	mm	mm	cm <sup>2</sup>	kg	LARZEP	A	Model
212	130	99	70	52	33	1	50	20	77,0	17	<b>CDC05005</b>	176	CATS50
412	130	99	70	52	33	1	50	20	77,0	23	<b>CDC05015</b>	276	CATS50
712	130	99	70	52	33	1	50	20	77,0	34	<b>CDC05030</b>	426	CATS50
229	165	130	95	54	48	1	75	20	132,7	29	<b>CDC10005</b>	189	CATS101
429	165	130	95	54	48	1	75	20	132,7	40	<b>CDC10015</b>	289	CATS101
729	165	130	95	54	48	1	75	20	132,7	58	<b>CDC10030</b>	439	CATS101
246	205	159	114	61	56	1	94	20	198,6	39	<b>CDC15005</b>	215	CATS150
446	205	159	114	61	56	1	94	20	198,6	65	<b>CDC15015</b>	315	CATS150
746	205	159	114	61	56	1	94	20	198,6	105	<b>CDC15030</b>	465	CATS150
262	235	184	133	67	66	1	113	25	265,9	55	<b>CDC20005</b>	230	CATS200
462	235	184	133	67	66	1	113	25	265,9	91	<b>CDC20015</b>	330	CATS200
762	235	184	133	67	66	1	113	25	265,9	146	<b>CDC20030</b>	480	CATS200
285	275	216	165	73	78	1	145	25	366,4	89	<b>CDC25005</b>	274	CATS250
485	275	216	165	73	78	1	145	25	366,4	136	<b>CDC25015</b>	374	CATS250
785	275	216	165	73	78	1	145	25	366,4	207	<b>CDC25030</b>	524	CATS250



**HBM / HBE**  
Powerpacks



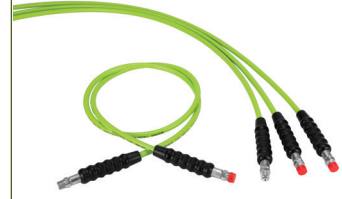
P.72

**AV**  
Pressure Gauges



P.92

**AP2**  
Hoses



P.83

**AZ3140**  
Coupler 3/8" -18 NPT included

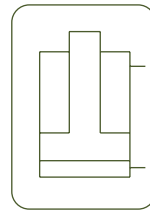


P.84

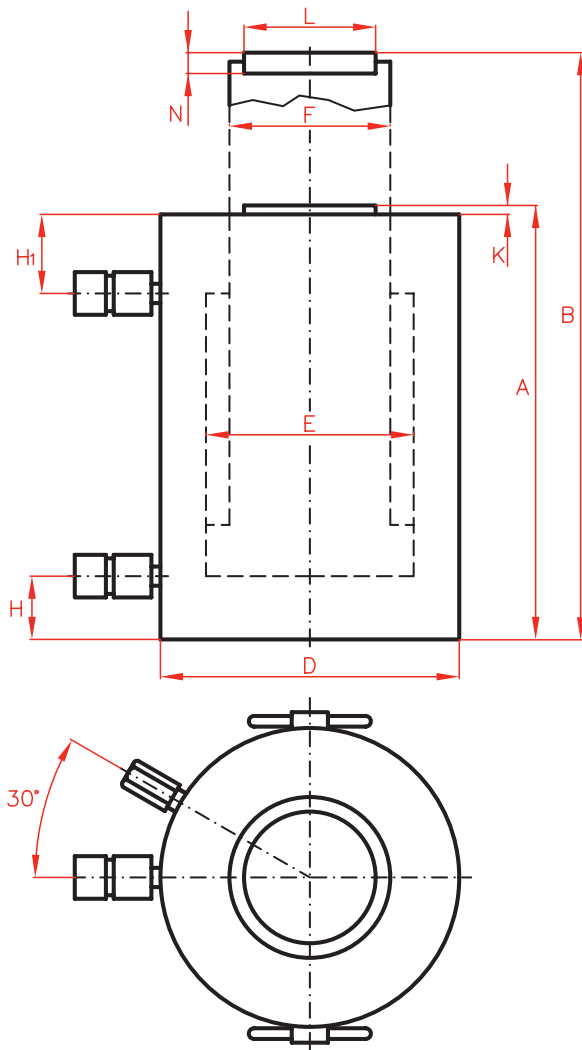


Capacity		Stroke	Model	Oil Cap.	A
ton	kN	mm	LARZEP	cm <sup>3</sup>	mm
300	3.193	50	CDC30005	2281	322
		150	CDC30015	6843	422
		300	CDC30030	13685	572
500	5.114	50	CDC50005	3653	360
		150	CDC50015	10959	460
		300	CDC50030	21918	610
600	5.987	50	CDC60005	4276	360
		150	CDC60015	12829	460
		300	CDC60030	25659	610
800	8.234	50	CDC80005	5881	395
		150	CDC80015	17644	495
		300	CDC80030	35288	645
1.000	10.260	50	CDC100005	7329	421
		150	CDC100015	21986	521
		300	CDC100030	43972	671



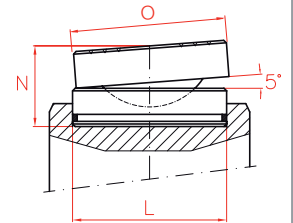


Type	<b>CDC</b>
Capacity	<b>50 - 1.000 ton</b>
Stroke	<b>50 - 300 mm</b>
Max. pressure	<b>700 bar</b>



OPTIONAL TILTING SADDLES

Model	L	N	O	Weight
LARZEP	mm	mm	mm	kg
CATS400	159	78,0	210	17,0
CATS500	179	77,0	230	20,0
CATS600	194	81,5	250	24,0
CATS800	224	86,5	275	32,0
CATS1000	249	105,5	300	46,0



P.89

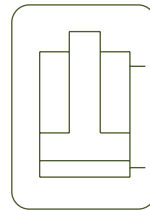
B	D	E	F	H	H1	K	L	N	Area	Weight	Model	With tilting saddle	
mm	mm	mm	mm	mm	mm	mm	mm	mm	cm <sup>2</sup>	kg	LARZEP	A	Model
372	310	241	197	101	75	1	177	20	456,2	184	CDC30005	361	CATS301R
572	310	241	197	101	75	1	177	20	456,2	232	CDC30015	461	CATS301R
872	310	241	197	101	75	1	177	20	456,2	303	CDC30030	611	CATS301R
410	400	305	248	114	135	3	228	30	730,6	379	CDC50005	408	CATS501R
610	400	305	248	114	135	3	228	30	730,6	468	CDC50015	508	CATS501R
910	400	305	248	114	135	3	228	30	730,6	601	CDC50030	658	CATS501R
410	430	330	267	114	135	3	247	30	855,3	438	CDC60005	413	CATS601R
610	430	330	267	114	135	3	247	30	855,3	540	CDC60015	513	CATS601R
910	430	330	267	114	135	3	247	30	855,3	693	CDC60030	663	CATS601R
445	505	387	317	149	135	3	297	30	1176,3	665	CDC80005	452	CATS801R
645	505	387	317	149	135	3	297	30	1176,3	809	CDC80015	552	CATS801R
945	505	387	317	149	135	3	297	30	1176,3	1023	CDC80030	702	CATS801R
471	560	432	343	174	170	3	323	30	1465,7	872	CDC100005	498	CATS1001R
671	560	432	343	174	170	3	323	30	1465,7	1047	CDC100015	598	CATS1001R
971	560	432	343	174	170	3	323	30	1465,7	1305	CDC100030	748	CATS1001R

## ALUMINIUM DOUBLE ACTING CYLINDERS



- ✓ Capacities from 50 and 100 ton, strokes up to 300 mm.
- ✓ Made from high strength aluminium alloy.
- ✓ All aluminium parts are treated to improve resistance and extend working life.
- ✓ Lightweight. Over 40% weight reduction when compared with steel equivalent.
- ✓ Fitted with steel base plate and saddle for wear resistance.
- ✓ Internal safety valve to prevent accidental over-pressure.
- ✓ Not suitable for high-cycle applications.





**ALUM. DOUBLE ACTING CYLINDERS**



Type	<b>DDA</b>
Capacity	<b>50 - 100 ton</b>
Stroke	<b>50 - 300 mm</b>
Max. pressure	<b>700 bar</b>

DDA CYLINDERS



Step by step aluminium cylinders. Stage lifting.



**CDC**  
Double Acting High Tonnage Cylinders



P.44

**D**  
Double Acting Cylinders



P.42

**DAH**  
Aluminium Double Acting Hollow Piston Cylinders



P.54

**AZ04**  
Optional Tilting Saddles available



P.89



**HBM / HBE**  
Powerpacks



P.72

**Z22107**  
Air Hydraulic Pumps



P.70

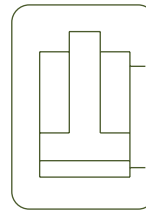
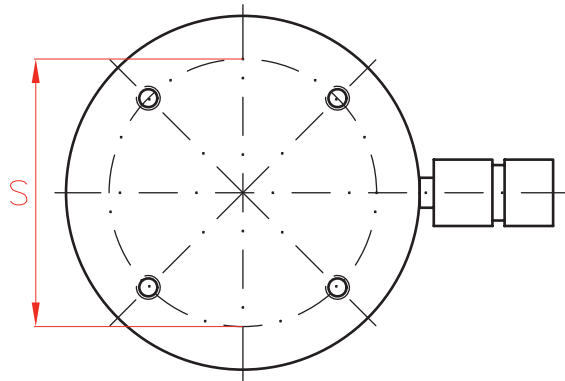
**X**  
Double Acting Hand Pumps



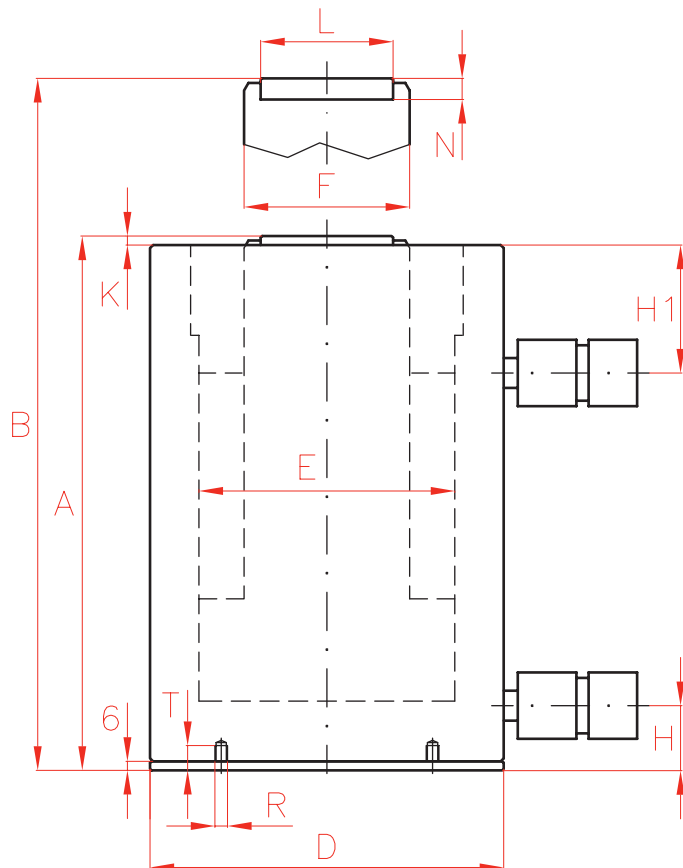
P.66

Capacity	Stroke	Model	Capacity (kN)	Oil Cap.	A	
ton	mm	LARZEP	Push	cm <sup>3</sup>	mm	
<b>50</b>	50	<b>DDA05005</b>	487	354	198	
	100	<b>DDA05010</b>	487	709	248	
	150	<b>DDA05015</b>	487	1.063	298	
	200	<b>DDA05020</b>	487	1.418	348	
	250	<b>DDA05025</b>	487	1.772	398	
	300	<b>DDA05030</b>	487	2.126	448	
<b>100</b>	50	<b>DDA10005</b>	911	664	230	
	100	<b>DDA10010</b>	911	1.327	280	
	150	<b>DDA10015</b>	911	1.991	330	
	200	<b>DDA10020</b>	911	2.655	380	
	250	<b>DDA10025</b>	911	3.318	430	
	300	<b>DDA10030</b>	911	3.982	480	



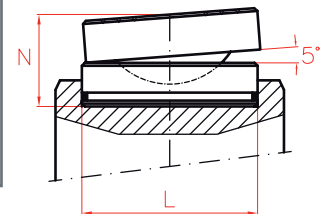


Type	<b>DDA</b>
Capacity	<b>50 - 100 ton</b>
Stroke	<b>50 - 300 mm</b>
Max. pressure	<b>700 bar</b>



OPTIONAL TILTING SADDLES

Model	L	N	Weight
LARZEP	mm	mm	kg
<b>AZ0402</b>	61	39	0,8
<b>AZ0404</b>	88	47	2,2



P.89

B	D	E	F	H	H1	K	L	N	S	R	T	Area	Weight	Model	With tilting saddle	
mm	mm	mm	mm	mm	mm		mm	mm	mm		mm	cm <sup>2</sup>	kg	LARZEP	A	Model
248	135	95	75	26	60	7	61	12	115	M6	19	71	8,0	<b>DDA05005</b>	225	AZ0402
348	135	95	75	26	60	7	61	12	115	M6	19	71	9,7	<b>DDA05010</b>	275	AZ0402
448	135	95	75	26	60	7	61	12	115	M6	19	71	11,3	<b>DDA05015</b>	325	AZ0402
548	135	95	75	26	60	7	61	12	115	M6	19	71	12,9	<b>DDA05020</b>	375	AZ0402
648	135	95	75	26	60	7	61	12	115	M6	19	71	14,6	<b>DDA05025</b>	425	AZ0402
748	135	95	75	26	60	7	61	12	115	M6	19	71	16,2	<b>DDA05030</b>	475	AZ0402
280	180	130	110	32	70	5	88	14	160	M6	19	133	16,1	<b>DDA10005</b>	263	AZ0404
380	180	130	110	32	70	5	88	14	160	M6	19	133	19,2	<b>DDA10010</b>	313	AZ0404
480	180	130	110	32	70	5	88	14	160	M6	19	133	22,2	<b>DDA10015</b>	363	AZ0404
580	180	130	110	32	70	5	88	14	160	M6	19	133	25,3	<b>DDA10020</b>	413	AZ0404
680	180	130	110	32	70	5	88	14	160	M6	19	133	28,3	<b>DDA10025</b>	463	AZ0404
780	180	130	110	32	70	5	88	14	160	M6	19	133	31,3	<b>DDA10030</b>	513	AZ0404

**DOUBLE ACTING HOLLOW PISTON CYLINDERS**



- ✓ Double acting hollow piston hydraulic cylinders with a capacity from 30 to 145 ton, stroke up to 258 mm, rated for 700 bar.
- ✓ For push and pull operations: Tensioning cables and bolts, pulling sleeves and bearings.
- ✓ Collar thread, piston end thread and base holes for easy fixing.
- ✓ Safety valve on the retract side to prevent accidental over-pressure.
- ✓ Hollow plain saddle as standard. Optional solid or threaded saddles available.
- ✓ Hollow nickel plated piston.



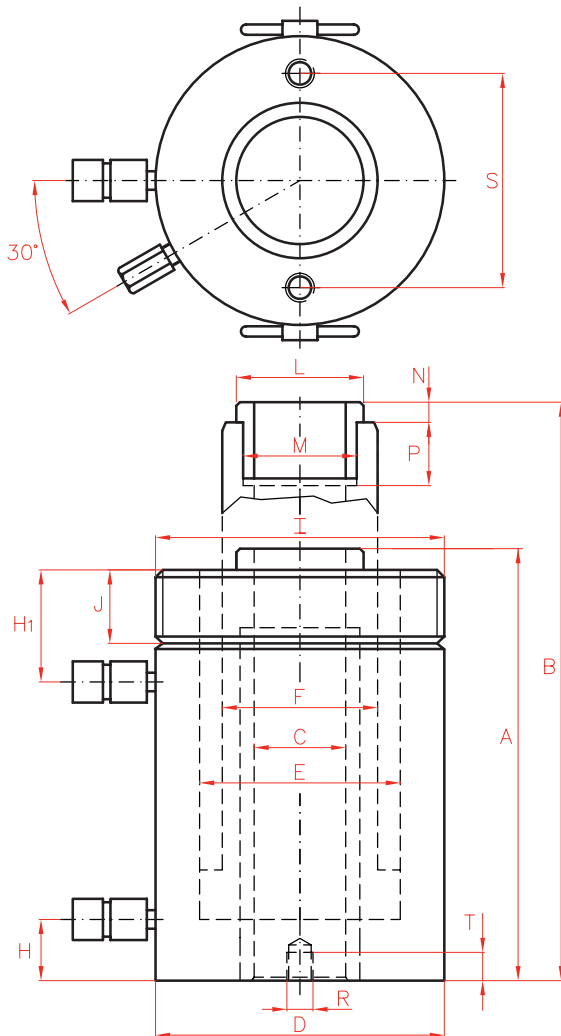
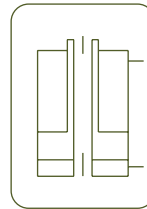
Capacity	Stroke	Model	Capacity (kN)		Oil Cap.	A	B	C	D	
			ton	mm						
30	178	DDH03015	326	213	829	330	508	33,3	114	
	258	DDH03025	326	213	1.202	431	689	33,3	114	
60	89	DDH06008	576	380	733	247	336	53,8	159	
	166	DDH06015	576	380	1.366	323	489	53,8	159	
	257	DDH06025	576	380	2.115	438	695	53,8	159	
95	38	DDH10004	931	612	505	165	203	79,2	212	
	76	DDH10008	931	612	1011	254	330	79,2	212	
	153	DDH10015	931	612	2.035	342	495	79,2	212	
	257	DDH10025	931	612	3.420	460	717	79,2	212	
145	203	DDH15020	1.429	718	4.144	349	552	79,2	247	



**AZ05**  
Hollow Saddles



P.89



Type **DDH**

Capacity **30 - 145 ton**

Stroke **38 - 258 mm**

Max. pressure **700 bar**

**DAH**  
Aluminium Double Acting  
Hollow Piston Cylinders



P.54



	E	F	H	H1	I	J	L	M	N	P	R	S	T	Area	Weight	Model
	mm	mm	mm	mm	UN	mm	mm	UN	mm	mm	UN	mm	mm	cm <sup>2</sup>	kg	LARZEP
	88,9	63,5	25	60	4½"- 12	42	63	1 13/16"-16	9	22	¾"- 16	92,2	15,7	46,6	21	<b>DDH03015</b>
	88,9	63,5	25	60	4½"- 12	42	63	1 13/16"-16	9	22	¾"- 16	92,2	15,7	46,6	27	<b>DDH03025</b>
	123,9	91,9	31	66	6¼"- 12	48	91	2 3/4"-16	12	19	½"- 13	130,0	14,0	82,3	28	<b>DDH06008</b>
	123,9	91,9	31	66	6¼"- 12	48	91	2 3/4"-16	12	19	½"- 13	130,0	14,0	82,3	35	<b>DDH06015</b>
	123,9	91,9	31	66	6¼"- 12	48	91	2 3/4"-16	12	19	½"- 13	130,0	14,0	82,3	45	<b>DDH06025</b>
	165,1	127,0	38	44	-	-	126	4"-16	12	25	5/8"- 16	177,8	19,0	133,0	33	<b>DDH10004</b>
	165,1	127,0	38	85	83/8"- 12	60	126	4"-16	12	25	5/8"- 16	177,8	19,0	133,0	61	<b>DDH10008</b>
	165,1	127,0	38	85	83/8"- 12	60	126	4"-16	12	25	5/8"- 16	177,8	19,0	133,0	79	<b>DDH10015</b>
	165,1	127,0	38	85	83/8"- 12	60	126	4"-16	12	25	5/8"- 16	177,8	19,0	133,0	106	<b>DDH10025</b>
	190,5	152,4	38	60	-	-	127	4 1/4"-12	4	25	5/8"- 16	213,4	23,0	204,1	111	<b>DDH15020</b>



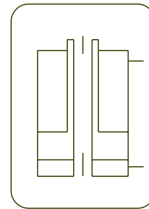
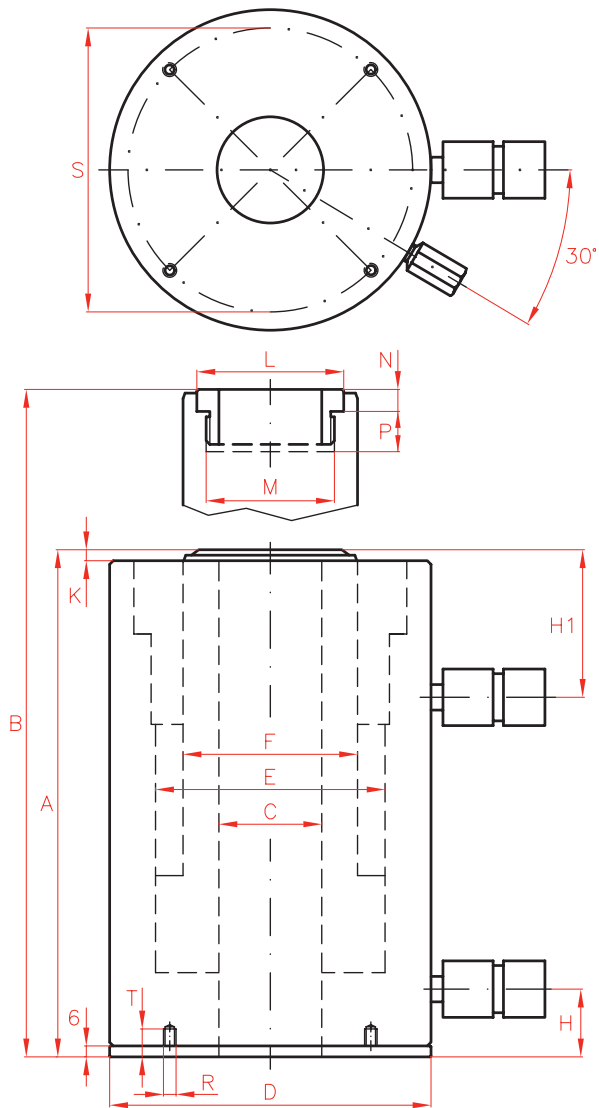
**ALUMINIUM DOUBLE ACTING, HOLLOW PISTON CYLINDERS**



- ✓ Capacities from 30 to 100 ton, strokes up to 250 mm.
- ✓ For push and pull operations: Tensioning cable and bolts, pulling sleeves and bearings.
- ✓ Made from high-strength aluminium alloy.
- ✓ All aluminium parts are treated to improve resistance and extend working life.
- ✓ Lightweight. Over 40% weight reduction when compared with steel equivalent.
- ✓ Lighter and shorter than single acting SAH equivalent.
- ✓ Fitted with steel base plate for wear resistance.
- ✓ Safety valve to prevent accidental over-pressure.
- ✓ Hollow plain saddle as standard. Optional solid or threaded saddles available. See page 90.
- ✓ Not suitable for high-cycle applications.

Capacity ton	Stroke mm	Model LARZEP	Capacity (kN)		Oil Cap. cm <sup>3</sup>
			Push	Pull	
30	50	DAH03005	302	173	220
	100	DAH03010	302	173	440
	150	DAH03015	302	173	660
	200	DAH03020	302	173	880
	250	DAH03025	302	173	1.100
60	50	DAH06005	578	356	421
	100	DAH06010	578	356	842
	150	DAH06015	578	356	1.263
	200	DAH06020	578	356	1.684
	250	DAH06025	578	356	2.105
100	50	DAH10005	1.018	647	742
	100	DAH10010	1.018	647	1.484
	150	DAH10015	1.018	647	2.226
	200	DAH10020	1.018	647	2.968
	250	DAH10025	1.018	647	3.710





ALUMINIUM D/A HOLLOW CYLINDERS



Type	<b>DAH</b>
Capacity	30 - 100 ton
Stroke	50 - 250 mm
Max. pressure	700 bar

DAH CYLINDERS

**DDH**  
Double Acting Hollow Piston Cylinders



P.52

**AZ04**  
Optional Saddles available



P.89

	A	B	C	D	E	F	H	H1	K	L	M	N	P	R	S	T	Area	Weight	Model
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	UN	mm	mm		mm	mm	cm <sup>2</sup>	kg	LARZEP
	217	267	34	130	90	70	32	61	4	55	1 11/13"-16	9	22	M6	110	19	44	7	<b>DAH03005</b>
	267	367	34	130	90	70	32	61	4	55	1 11/13"-16	9	22	M6	110	19	44	9	<b>DAH03010</b>
	317	467	34	130	90	70	32	61	4	55	1 11/13"-16	9	22	M6	110	19	44	12	<b>DAH03015</b>
	367	567	34	130	90	70	32	61	4	55	1 11/13"-16	9	22	M6	110	19	44	13	<b>DAH03020</b>
	417	667	34	130	90	70	32	61	4	55	1 11/13"-16	9	22	M6	110	19	44	15	<b>DAH03025</b>
	225	275	56	175	125	95	37	66	4	80	2 3/4"-16	12	22	M6	155	19	84	13	<b>DAH06005</b>
	275	375	56	175	125	95	37	66	4	80	2 3/4"-16	12	22	M6	155	19	84	16	<b>DAH06010</b>
	325	475	56	175	125	95	37	66	4	80	2 3/4"-16	12	22	M6	155	19	84	19	<b>DAH06015</b>
	375	575	56	175	125	95	37	66	4	80	2 3/4"-16	12	22	M6	155	19	84	22	<b>DAH06020</b>
	425	675	56	175	125	95	37	66	4	80	2 3/4"-16	12	22	M6	155	19	84	25	<b>DAH06025</b>
	256	306	81	235	170	130	40	80	6	116	4"-16	13	25	M6	215	19	148	27	<b>DAH10005</b>
	306	406	81	235	170	130	40	80	6	116	4"-16	13	25	M6	215	19	148	33	<b>DAH10010</b>
	356	506	81	235	170	130	40	80	6	116	4"-16	13	25	M6	215	19	148	38	<b>DAH10015</b>
	406	606	81	235	170	130	40	80	6	116	4"-16	13	25	M6	215	19	148	43	<b>DAH10020</b>
	456	706	81	235	170	130	40	80	6	116	4"-16	13	25	M6	215	19	148	49	<b>DAH10025</b>

## DOUBLE ACTING PRODUCTION CYLINDERS



- ✓ Capacities from 4 to 23 ton, strokes up to 260 mm.
- ✓ For carrying out push and pull operations.
- ✓ Black nitrided to improve corrosion resistance.
- ✓ Designed for long life in production applications.
- ✓ Large range of mounting accessories: flanges, mounting blocks, nuts and clevis eyes.

Capacity ton	Stroke mm	Model LARZEP	Capacity (kN)		Area (cm <sup>2</sup> )		Oil Cap. cm <sup>3</sup>	A mm
			Push	Pull	Push	Pull		
4	28	DM00403	34	12	5	2	14	186
	79	DM00408	34	12	5	2	39	237
	155	DM00416	34	12	5	2	76	313
8	28	DM00803	86	44	13	6	35	223
	79	DM00808	86	44	13	6	99	274
	155	DM00816	86	44	13	6	195	350
	257	DM00826	86	44	13	6	323	452
15	159	DM01516	139	73	20	11	323	389
	260	DM01526	139	73	20	11	527	490
23	159	DM02316	228	93	33	14	527	425
	260	DM02326	228	93	33	14	863	526



**HBM / HBE**  
Powerpacks



P.72

**Z12107**  
Air Hydraulic Pumps



P.70

**D/A PRODUCTION CYLINDERS**



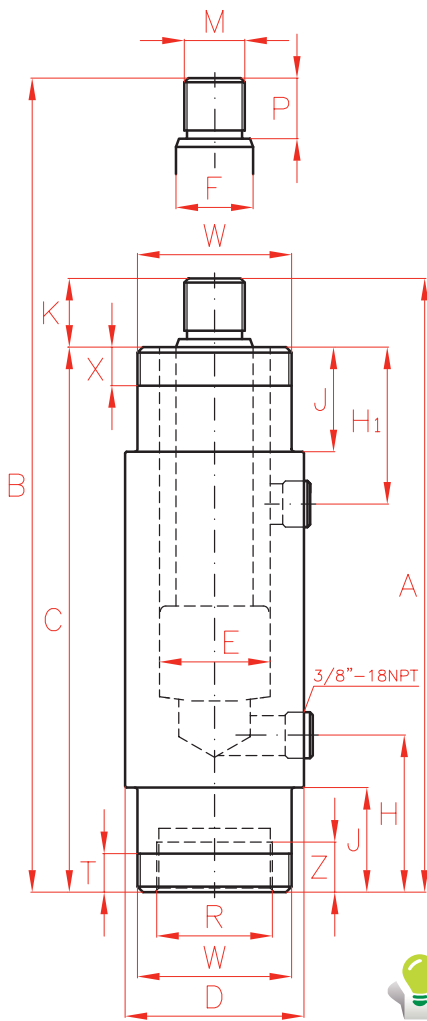
Type **DM**

Capacity **4 - 23 ton**

Stroke **28 - 260 mm**

Max. pressure **700 bar**

DM CYLINDERS



**WARNING**

**DM cylinders are not equipped with safety valve to prevent accidental over-pressure.**

**DM-RB, DM-RP, DM-RC, DM-RS**  
Mounting Accessories for DM cylinders



P.58

**AV**  
Pressure Gauges



P.92

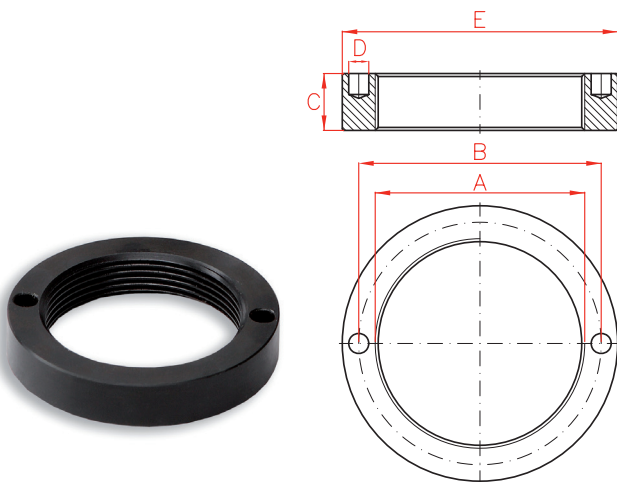


NOTE: 4 ton cylinders have 1/4" BSP thread for the couplers.

	B	C	D	E	F	H	H1	K	J	M	P	R	W	X	Z	Weight	Model
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	LARZEP
	214	162	51	25	20	47	61	24	29	M16 x 1,5	19	M30 x 1,5	M42 x 1,5	11	9	2,0	DM00403
	316	213	51	25	20	47	61	24	29	M16 x 1,5	19	M30 x 1,5	M42 x 1,5	11	9	2,9	DM00408
	468	289	51	25	20	47	61	24	29	M16 x 1,5	19	M30 x 1,5	M42 x 1,5	11	9	3,9	DM00416
	251	198	65	40	28	75	57	25	38	M22 x 1,5	22	M42 x 1,5	M56 x 2	14	14	4,2	DM00803
	353	249	65	40	28	75	57	25	38	M22 x 1,5	22	M42 x 1,5	M56 x 2	14	14	5,3	DM00808
	505	325	65	40	28	75	57	25	38	M22 x 1,5	22	M42 x 1,5	M56 x 2	14	14	6,8	DM00816
	709	427	65	40	28	75	57	25	38	M22 x 1,5	22	M42 x 1,5	M56 x 2	14	14	9,0	DM00826
	548	359	80	51	35	73	95	30	54	M30 x 1,5	28	M56 x 2	M70 x 2	22	24	9,0	DM01516
	750	460	80	51	35	73	95	30	54	M30 x 1,5	28	M56 x 2	M70 x 2	22	24	11,7	DM01526
	584	398	92	65	50	89	110	27	70	M42 x 1,5	25	M70 x 2	M85 x 2	29	26	17,0	DM02316
	786	499	92	65	50	89	110	27	70	M42 x 1,5	25	M70 x 2	M85 x 2	29	26	21,0	DM02326



## ATTACHMENTS FOR DM CYLINDERS



### Nuts

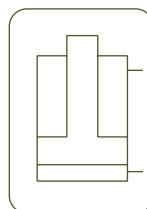
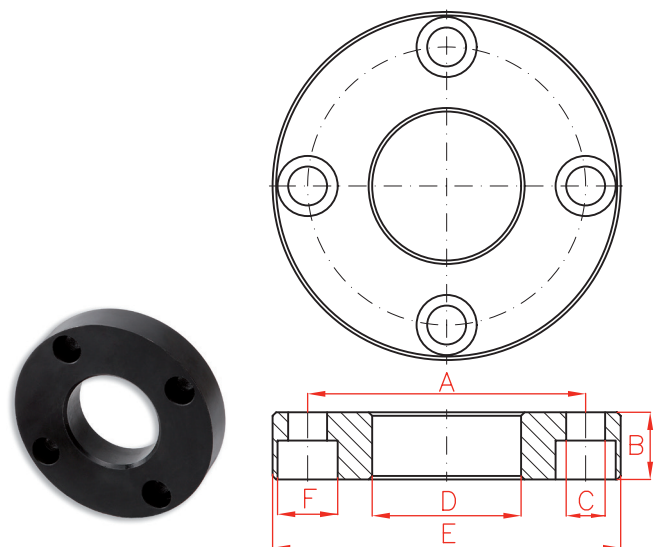
Model	A	B	C	D	E	Weight
LARZEP	mm	mm	mm	mm	mm	kg
<b>DM004RB</b>	M42 x 1,5	49,5	9,5	6,3	57	0,1
<b>DM008RB</b>	M56 x 2	65,5	12,7	6,7	75	0,1
<b>DM015RB</b>	M70 x 2	81,0	19,0	6,7	92	0,4
<b>DM023RB</b>	M85 x 2	96,5	25,4	6,7	108	0,7



### Clevis Eyes

Model	A	B	C	D	E	F	G	H	I	J	Weight
LARZEP	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
<b>DM004RP</b>	30	M30 x 1,5	19,1	67,4	16	15,9	52,4	32,4	23,8	M16 x 1,5	0,2
<b>DM008RP</b>	42	M42 x 1,5	25,4	78,1	20	25,4	57,1	37,1	23,8	M22 x 1,5	0,6
<b>DM015RP</b>	56	M56 x 2	25,4	105,8	25	31,9	77,8	52,8	30,2	M30 x 1,5	1,3
<b>DM023RP</b>	70	M70 x 2	25,4	112,8	32	38,2	77,8	50,3	27,0	M42 x 1,5	2,1





Type **DM**

Capacity **4 - 23 ton**

Stroke **28 - 260 mm**

Max. pressure **700 bar**



To use these attachments the nut DM\_RB is required.

**Flanges**

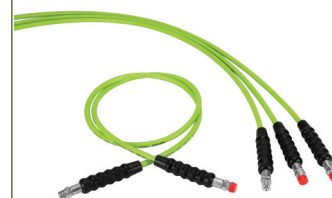
Model	A	B	C	D	E	F	Weight
LARZEP	mm	mm	mm	mm	mm	mm	kg
DM004RS	78,6	19,0	11,0	42,1	98,4	17	1,0
DM008RS	98,4	25,4	11,0	56,1	120,5	17	2,1
DM015RS	115,9	35,0	13,4	70,1	143,0	18	3,8
DM023RS	135,7	44,5	17,0	85,1	165,0	22	6,0

**AZ3**  
Coupler 3/8"-18 NPT

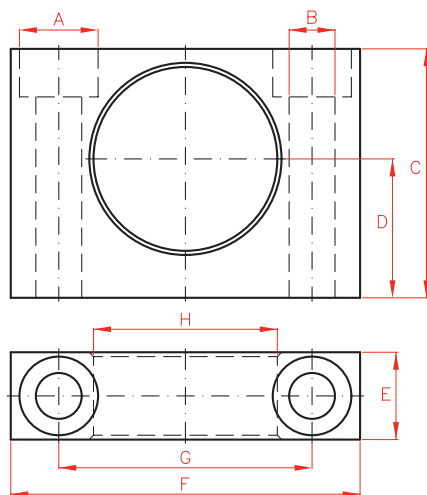


P.84

**AP2**  
Hoses



P.83



To use these attachments the nut DM\_RB is required.

**Mounting Blocks**

Model	A	B	C	D	E	F	G	H	Weight
LARZEP	mm	mm	mm	mm	mm	mm	mm	mm	kg
DM004RC	18	10,5	57,0	31,8	20	80	58,0	42,1	0,4
DM008RC	21	13,5	82,5	44,5	25	105	78,0	56,1	1,2
DM015RC	28	20,0	100,0	52,4	35	127	95,2	70,1	2,9
DM023RC	36	26,5	125,0	63,5	45	159	117,5	85,1	4,5

**CYLINDER - PUMP SETS**



- ✓ All sets include 2 m hose (AP2020), male coupler (AZ3120), pressure gauge (AV10007) and gauge adaptor (AZ1502).
- ✓ Available with hand pump or air hydraulic pump.
- ✓ Cylinder pump set available without pressure gauge or gauge adaptor. Add 'G' to the reference.

**SINGLE ACTING, HOLLOW PISTON CYLINDER**

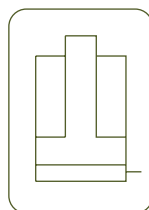
Capacity		Stroke	Closed Height	Cylinder	Hand Pump 1 Stage	Hand Pump 1 Stage	Hand Pump 1 Stage	Hand Pump 2 Stage	Hand Pump 2 Stage	Air Hydraulic Pump
ton	kN	mm	mm	LARZEP	W20307	W10607	W20807	W21807	W22607	Z12107
12	121	42	120	SSH01204P	JH01204					JHZ01204
22	217	49	162	SSH02205		JH02205				JHZ02205
30	302	64	178	SSH03006			JH03006			JHZ03006
60	578	76	247	SSH06008				JH06008		JHZ06008
100	1.018	76	254	SSH10008					JH10008	JHZ10008



**W**  
Single Acting Hand Pumps.



P.66



Type

J

Capacity

5 - 100 ton

Stroke

40 - 362 mm

Max. pressure

700 bar

**Z12107**  
Air Hydraulic Pumps



P.70

**SINGLE ACTING, SPRING RETURN CYLINDER**

Capacity		Stroke	Closed Height	Cylinder	Hand Pump 1 Stage	Hand Pump 1 Stage	Hand Pump 1 Stage	Hand Pump 2 Stage	Hand Pump 2 Stage	Air Hydraulic Pump
ton	kN	mm	mm	LARZEP	W20307	W10607	W20807	W21807	W22607	Z12107
5	49	78	165	SSM00508	JM00508					JMZ00508
		129	216	SSM00513	JM00513					JMZ00513
10	109	51	122	SSM01005	JM01005					JMZ01005
		154	248	SSM01015		JM01015				JMZ01015
		255	350	SSM01025			JM01025			JMZ01025
15	163	103	201	SSM01510		JM01510				JMZ01510
		155	271	SSM01515			JM01515			JMZ01515
23	228	56	165	SSM02305		JM02305				JMZ02305
		108	216	SSM02310		JM02310				JMZ02310
		162	273	SSM02315			JM02315			JMZ02315
		264	375	SSM02326				JM02326		JMZ02326
		365	475	SSM02336					JM02336	JMZ02336
30	303	217	387	SSM03021				JM03021	JMZ03021	
50	487	156	283	SSM05016				JM05016	JMZ05016	
100	911	169	357	SSM10015				JM10015	JMZ10015	

**LOW HEIGHT, SINGLE ACTING, SPRING RETURN CYLINDER**

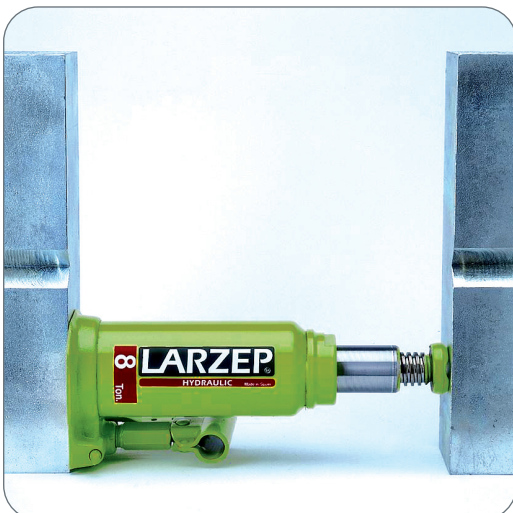
Capacity		Stroke	Closed Height	Cylinder	Hand Pump 1 Stage	Hand Pump 1 Stage	Hand Pump 1 Stage	Hand Pump 2 Stage	Hand Pump 2 Stage	Air Hydraulic Pump
ton	kN	mm	mm	LARZEP	W20307	W10607	W20807	W21807	W22607	Z12107
10	109	38	88	SSP01004	JP01004					JPZ01004
20	214	45	98	SSP02004		JP02004				JPZ02004
30	303	62	117	SSP03006			JP03006			JPZ03006
50	486	60	122	SSP05006			JP05006			JPZ05006
100	911	57	141	SSP10006				JP10006		JPZ10006



**BOTTLE JACKS**



- ✓ Capacities from 3 to 50 ton.
- ✓ Up to 30 ton models are single stage with screw extension.
- ✓ All models include safety relief valve.
- ✓ Supplied with zinc plated handle.
- ✓ Bottle jacks will operate horizontally, provided that the pump element is at the lowest point.





Bottle jack with lock nut



50 ton, 2 speed, long stroke bottle jack

**BOTTLE JACKS**



Type	<b>A</b>
Capacity	<b>3 - 50 ton</b>
Stroke	<b>113 - 180 mm</b>
Max. pressure	<b>700 bar</b>

A BOTTLE JACKS

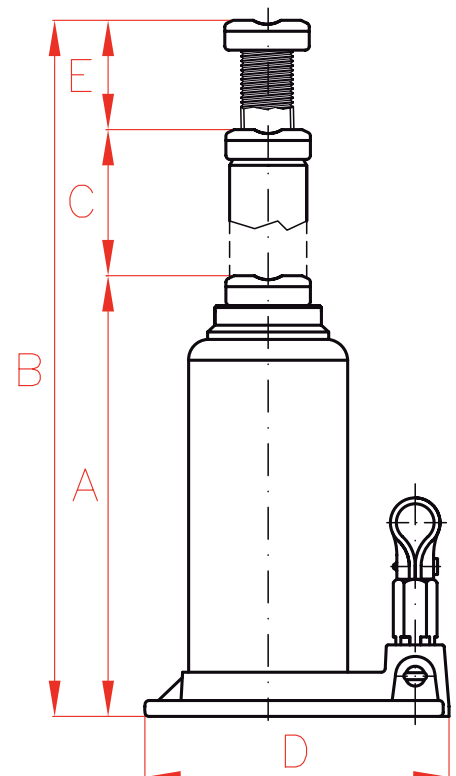
**J**  
Cylinder - pump sets



P.60

**BOTTLE JACKS**

Capacity	Model	A	B	C	D	Screw E	Weight
ton	LARZEP	mm	mm	mm	mm	mm	kg
3	A00311	191	364	113	125 x 83	60	3
5	A00511	200	388	118	142 x 92	70	4
12	A01214	240	468	148	173 x 119	80	8
20	A02016	270	430	160	193 x 144	0	13
30	A03016	281	440	159	202 x 150	0	19
50	A05018	300	480	180	218 x 176	0	36



## HYDRAULIC PUMPS










**LARZEP** Pumps are available in a wide range of models: Hand Pumps, Air Hydraulic Pumps, Modular Pumps, Manual, Electric and Air Hydraulic Powerpacks, Hydrotest Hand Pumps and Air Pumps.

- ✓ 700 bar pumps as standard.
- ✓ Air and hand operated hydrotest pumps.
- ✓ Wide range of reservoirs, from 280 cm<sup>3</sup> in hand pumps up to 25 litres in standard powerpacks.



# PUMPS



Models	Pump type	Max. Oil Capacity litres	Max. Flow Rate l/min		Page
<b>W</b>	Hydraulic Single Acting Hand Pumps	6,5	4,9 cm <sup>3</sup> /stroke		64
<b>X</b>	Hydraulic Double Acting Hand Pumps	6,5	4,9 cm <sup>3</sup> /stroke		64
<b>WA</b>	Hydraulic Aluminium Hand Pumps	0,8	3,1 cm <sup>3</sup> /stroke		66
<b>Z - ZR</b>	Air Hydraulic Pumps 700 bar	10	0,14		68
<b>HBM</b>	Hydraulic Electric Powerpacks Manual Valve	25	1,64		70
<b>HBE</b>	Hydraulic Electric Powerpacks Solenoid Valve	25	1,64		72
<b>WI</b>	Modular Hand Pumps	–	36		74
<b>HAP</b>	Air Driven Hydrotest Pumps	7	16,2 cm <sup>3</sup> /stroke		76
<b>WAP - WIP</b>	Hydrotest Hand Pumps	100	20 cm <sup>3</sup> /stroke		78



**HYDRAULIC HAND PUMPS**



**W** Single acting



**X** Double acting

- ✓ **W** series pumps are for use with **Single Acting** cylinders.
- ✓ **X** series pumps are fitted with 4-way 3 position valve for use with **Double Acting** cylinders.
- ✓ The pump range includes single and two speed models.
- ✓ Two speed models provide rapid cylinder advance until contact is made with the load.
- ✓ Hydraulic port on all models is 3/8"-NPTF female.
- ✓ W and X series pumps are fitted with internal safety valves to prevent overpressure.
- ✓ W26507 and X26507 have a rectangular tank.
- ✓ WP21007 and XP21007 models are foot pedal operated.



WP21007 pump, foot pedal operated.



W26507, X26507 pumps.



HYDRAULIC HAND PUMPS

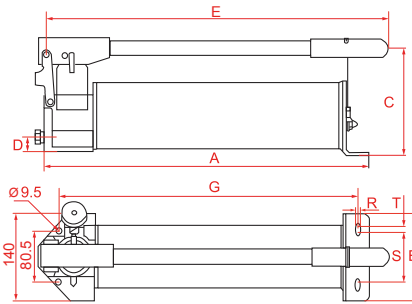
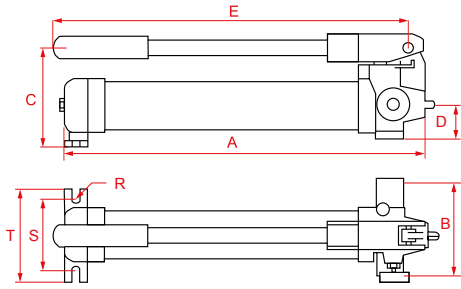


Type	<b>W - X</b>
Capacity	0,28 - 6,5 litres
Max. pressure	700 bar

**SINGLE ACTING W**

W20307 / W10607 / W20807 / W11407 / W21907

W22607 / W24507

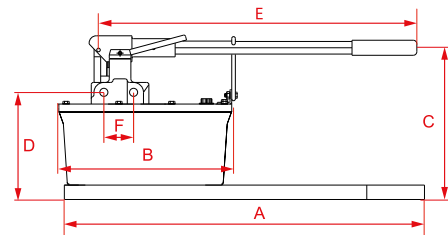
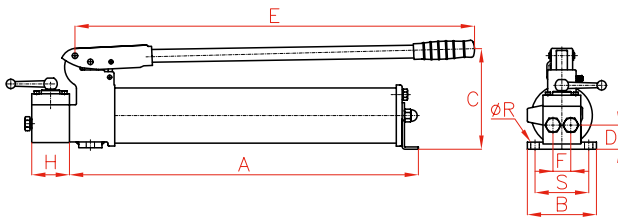


**DOUBLE ACTING X**

X22607 / X24507

**SINGLE / DOUBLE ACTING W - X**

W26507 / X26507



**SINGLE ACTING**

Model	Speeds	Usable oil	Handle effort	Oil displacement / stroke (cm <sup>3</sup> )		Pressure rating (bar)		A	B	C	D	E	G	R	S	T	Weight	Model
				1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage											
LARZEP	No.	cm <sup>3</sup>	kg	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	LARZEP
W20307	2	280	40	7	1,0	20	700	331	138	124	44	380	-	7	38	66	5,5	W20307
W10607	1	640	43	-	3,2	-	700	557	137	144	55	608	-	-	-	90	7,3	W10607
W20807	2	640	45	13	2,8	17	700	563	137	144	55	608	-	-	-	90	8,2	W20807
WP21007	2	1.000	43	12	2,0	50	700	550	176	445*	52	540	-	9,0	185,0	176	9,0	WP21007
W11407	1	1.400	43	-	3,2	-	700	526	137	174	55	608	-	-	-	106	10,9	W11407
W21907	2	1.800	49	13	2,8	21	700	548	147	174	23	558	-	10,5	82,0	140	11,0	W21907
W22607	2	2.600	41	46	4,0	28	700	656	140	186	41	680	616	10,5	80,5	10	12,7	W22607
W24507	2	4.450	43	46	4,0	28	700	574	146	189	41	643	528	10,5	80,5	10	18,1	W24507
W26507	2	6.500	37	126	4,9	28	700	635	312	233	191	640	-	-	-	-	20,0	W26507

**DOUBLE ACTING**

Model	Speeds	Usable oil	Handle effort	Oil displacement / stroke (cm <sup>3</sup> )		Pressure rating (bar)		A	B	C	D	E	F	H	R	S	Weight	Model
				1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage											
LARZEP	No.	cm <sup>3</sup>	kg	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	LARZEP
XP21007	2	1.000	43	12,0	2,0	50	700	550	176	445*	52	540	-	-	9,0	185	9,0	XP21007
X22607	2	2.600	41	46,0	4,0	27	700	654	140	186	54	680	-	125	9,5	80,5	14,3	X22607
X24507	2	4.450	43	46	4,0	27	700	570	150	189	41	643	110	130	10,5	99,5	19,6	X24507
X26507	2	6.500	37	126,0	4,9	28	700	635	312	233	193	644	70	-	-	-	20,8	X26507

\* with the pedal completely open.

**HYDRAULIC ALUMINIUM HAND PUMPS**

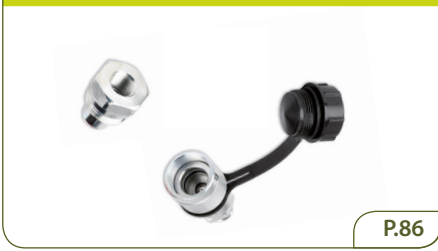


- ✓ WA series pumps are for use with Single Acting cylinders.
- ✓ Lightweight aluminium pumps, ideal for easy portability and handling.
- ✓ Two speed models to provide rapid cylinder advance until contact is made with the load.
- ✓ Hydraulic outlet port: 3/8"-NPT female.
- ✓ Fitted with safety valves to prevent overpressure.
- ✓ Fitted with handle clip for ease of carrying.

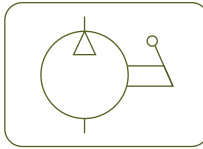
Model	Usable oil cm <sup>3</sup>	Handle effort kg	Oil displacement per stroke (cm <sup>3</sup> )		Pressure rating (bar)		Weight kg
			1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	
<b>LARZEP</b>							
<b>WA20507</b>	400	29	13,4	2,6	20	700	3,7
<b>WA21107</b>	810	43	15,0	3,1	20	700	5,0



**AZ3**  
Coupler 3/8"-18 NPT



P.86



**AV**  
Pressure Gauges



P.94

**HYDRAULIC ALUM. HAND PUMPS**



Type **WA**

Capacity **0,4 - 0,8 litre**

Max. pressure **700 bar**

**W**  
Single Acting Hand Pumps



P.66

**X**  
Double Acting Hand Pumps

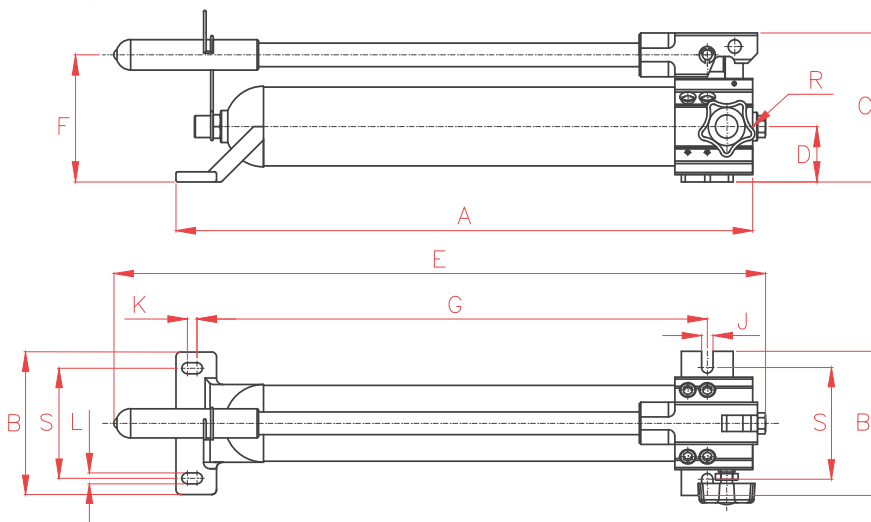


P.66

**AP2**  
Hoses



P.84



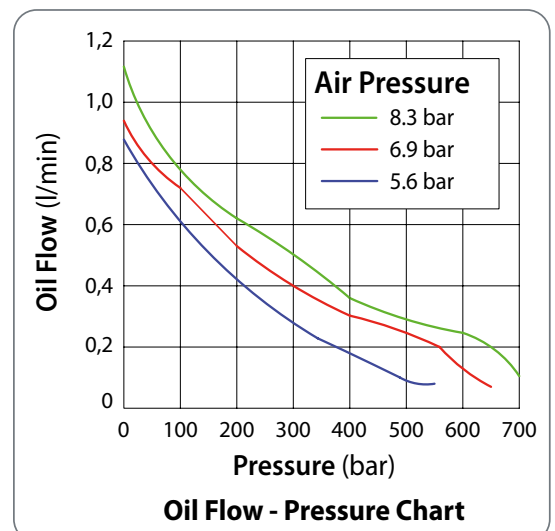
A	B	C	D	E	F	G	H	J	K	L	R	Model
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	NPT	LARZEP
361	140	141	51	435	124	295,0	108	11,2	10	11,2	3/8"-NPT	<b>WA20507</b>
556	140	141	51	625	124	489,5	108	11,2	10	11,2	3/8"-NPT	<b>WA21107</b>



## AIR HYDRAULIC PUMPS

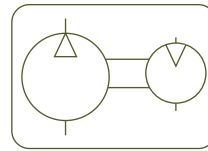
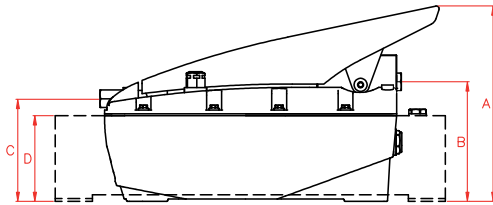


- ✓ On Z models for Single Acting cylinders, the pedal acts as the control valve, by controlling advance, hold and retract functions. In 'hold' mode, the pump maintains the output pressure.
- ✓ On ZR models, operation is controlled by a 3 metres remote pendant.
- ✓ Double Acting models are fitted with a manual 4-way 3 position control valve.
- ✓ The hydraulic port on all models is 3/8"-NPT female.
- ✓ Working pressure 700 bar.
- ✓ 4, 7 and 10 litres pumps are fitted with steel tanks.
- ✓ Optional steel base plate available for Z12107 part number.
- ✓ Air Inlet Port: 1/4" BSP female.
- ✓ Air Pressure: 2,8 - 10 bar.
- ✓ Air Consumption: 400 N l/min.
- ✓ 700 bar Flow Rate: 0,14 l/min.
- ✓ Sound level: 75 dBA



**Models:**

Z12107  
Z14007  
Z17007  
Z19107



Type

**Z - ZR**

Capacity

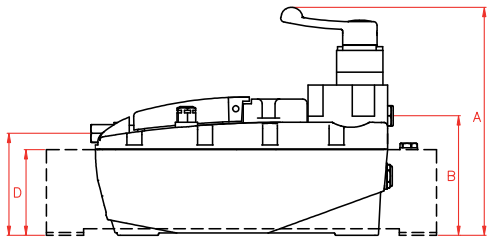
**2,1 - 10 litres**

Max. pressure

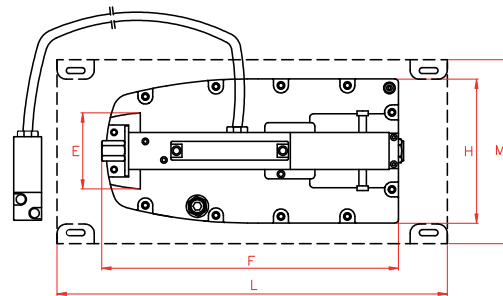
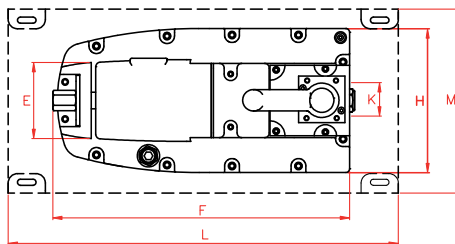
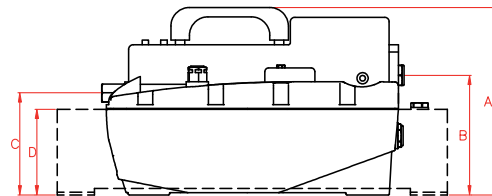
**700 bar**

**Models:**

Z22107  
Z24007  
Z27007



**Models:**  
ZR12107  
ZR14007



Type	Oil capacity	Model	A	B	C	D	E	F	G	H	K	L	M	Weight
	litres	LARZEP	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
Single Acting	<b>2,1</b>	<b>Z12107</b>	209	127	109	-	82	320	364	155	-	-	-	7,6
Single Acting	<b>4,0</b>	<b>Z14007</b>	256	173	154	137	82	320	364	155	-	350	178	14,4
Single Acting	<b>6,9</b>	<b>Z17007</b>	256	173	154	137	82	320	364	155	-	415	206	19,2
Single Acting	<b>10,0</b>	<b>Z19107</b>	278	198	180	162	82	320	364	155	-	430	220	21,8
Double Acting	<b>2,1</b>	<b>Z22107</b>	245	131	110	-	82	320	-	155	36	-	-	8,4
Double Acting	<b>4,0</b>	<b>Z24007</b>	290	176	154	137	82	320	-	155	36	350	178	15,2
Double Acting	<b>6,9</b>	<b>Z27007</b>	290	176	154	137	82	320	-	155	36	415	206	20,4
Single Acting	<b>2,1</b>	<b>ZR12107</b>	217	129	111	-	82	316	-	155	-	-	-	8,6
Single Acting	<b>4,0</b>	<b>ZR14007</b>	261	173	155	137	82	316	-	155	-	350	178	15,2

**HYDRAULIC ELECTRIC PUMPS (MANUAL VALVE)**

- ✓ Manual directional control valves.
- ✓ Also available HBE model, remote pendant controlled solenoid valves.
- ✓ The manual control valve is easily converted from double acting to single acting operation.
- ✓ Internal safety valve set at 700 bar to prevent overpressure.
- ✓ External adjustable pressure relief valve.
- ✓ For use with single acting or double acting cylinders for heavy lifting or production applications.

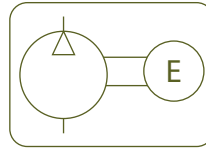
NOTE: Pressure gauge is not included.



**AZ89**  
Hydraulic Oil



P.85

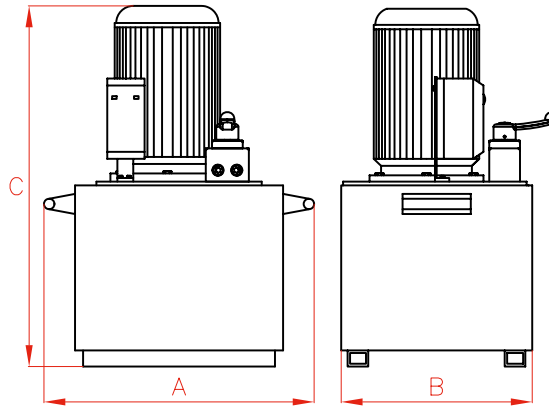


Type **HBM**

Capacity **5 - 25 litres**

Max. pressure **700 bar**

Capacity	A	B	C
litres	mm	mm	mm
5	330	230	500
8,5	350	250	525
12,5	370	290	550
25	470	360	670



**ELECTRIC PUMPS (MANUAL VALVE)**

Tank Size	Flow 700 bar	Flow 50 bar	230V-1ph-50Hz	400V-3ph-50/60Hz	Motor Power	Pump Weight
			litres	l/min		
5	0,27	2,7	HBM2241	HBM2244	0,56	21
8,5	0,54	5,90	HBM3341	HBM3344	1,10	30
12,5	0,54	5,90	HBM3441	HBM3444	1,10	38
12,5	0,82	8,64	HBM4441	HBM4444	1,10	40
25	1,64	14,00	HBM5541	HBM5544	2,20	78

**PUMP ACCESSORIES**



**B Remote Pendant**

- ✓ With 3 metres long cable.
- ✓ For remote operation of motor in HBM series, 'ON' button starts motor and stops when button is released.



**C Roll Bar**

- ✓ Protects pump and components: motor, valves, etc
- ✓ For easy portability.
- ✓ Different sizes available.



**G Glycerine Pressure Gauge**

- ✓ ± 1,6 % full scale.
- ✓ Reliable pressure measurement.
- ✓ Pressure range: 0-1000 bar.



**HYDRAULIC ELECTRIC PUMPS (SOLENOID VALVE)**

- ✓ Remote pendant controlled solenoid valves with up, down and emergency stop button.
- ✓ Internal safety valve set at 700 bar to prevent overpressure.
- ✓ External adjustable pressure relief valve.
- ✓ For use with single acting or double acting cylinders for heavy lifting or production applications.
- ✓ HBE series are supplied with the a 3 metres remote pendant as standard, with up, down and emergency stop button.

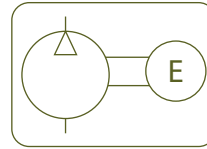
NOTE: Pressure gauge is not included.



**AZ89**  
Hydraulic Oil



P.85

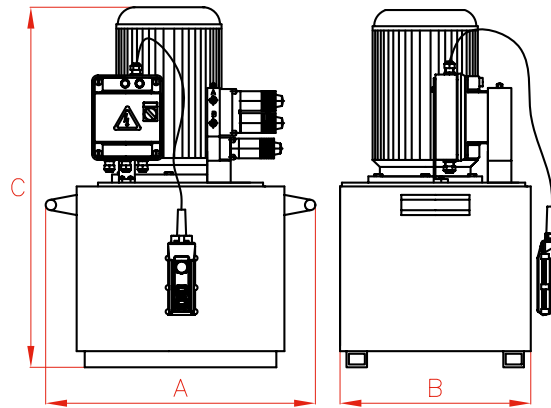


Type **HBE**

Capacity **5 - 25 litres**

Max. pressure **700 bar**

Capacity	A	B	C
litres	mm	mm	mm
5	370	230	500
8,5	390	310	525
12,5	410	390	550
25	470	360	670



**ELECTRIC PUMPS (SOLENOID VALVE)**

Tank Size	Flow 700 bar	Flow 50 bar	230V-1ph-50Hz	400V-3ph-50/60Hz	Motor Power	Pump Weight
			litres	l/min		
5	0,27	2,7	HBE2271	HBE2274	0,56	27
8,5	0,54	5,90	HBE3371	HBE3374	1,10	35
12,5	0,54	5,90	HBE3471	HBE3474	1,10	43
12,5	0,82	8,64	HBE4471	HBE4474	1,10	45
25	1,64	14,00	HBE5571	HBE5574	2,20	83

**PUMP ACCESSORIES**



**C Roll Bar**

- ✓ Protects pump and components: motor, valves, etc.
- ✓ For easy portability.
- ✓ Different sizes available.



**G Glycerine Pressure Gauge**

- ✓ ± 1,6 % full scale.
- ✓ Reliable pressure measurement.
- ✓ Pressure range: 0-1000 bar.

**MODULAR HAND PUMPS**

- ✓ Wide range with different working pressures.
- ✓ Lightweight with tapped holes in the base for easy mounting.
- ✓ All models are black nitrided.
- ✓ Designed for use with external reservoirs.
- ✓ Operating lever included.
- ✓ Tank is not included.

**AV**  
Pressure Gauges

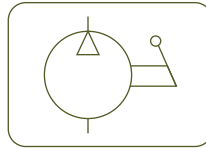
P.94



**AP2**  
Hoses



P.84



**MODULAR HAND PUMPS**



Type

**WI**

Capacity

-

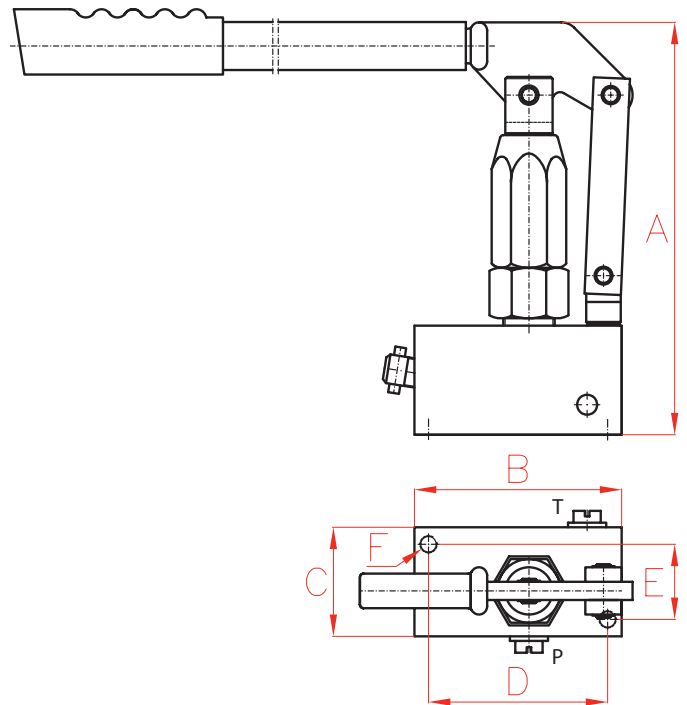
Max. pressure

**40 - 700 bar**

**AZ3**  
Coupler 3/8"-18 NPT



P.86



Working Pressure	Model	Max. Pressure	Piston ø	Oil per Stroke	Port Size	A	B	C	D	E	F	Weight
bar	LARZEP	bar	mm	cm <sup>3</sup>	NPT	mm	mm	mm	mm	mm	UNC	kg
700	<b>WI1400</b>	1.400	10	3	3/8"-18NPT	230	114	57	98,5	41,3	3/8"-16UNC	5,3
400	<b>WI700</b>	700	13	4	3/8"-18NPT	230	114	57	98,5	41,3	3/8"-16UNC	5,8
200	<b>WI210</b>	300	19	10	3/8"-18NPT	230	114	57	98,5	41,3	3/8"-16UNC	5,3
100	<b>WI100</b>	200	26	18	3/8"-18NPT	230	114	57	98,5	41,3	3/8"-16UNC	5,7
40	<b>WI040</b>	80	38	36	3/8"-18NPT	230	114	57	98,5	41,3	3/8"-16UNC	7,0

## AIR DRIVEN HYDROTEST PUMPS



- ✓ 10 Models Available, from 70 bar to 2.900 bar.
- ✓ Engineered and designed for easy operation.
- ✓ Compact and lightweight steel frame for full protection and handling.
- ✓ Fully integrated, protected and calibrated pressure gauge.
- ✓ Clearly labelled controls for improved safety.
- ✓ Supplied with air inlet connector, air filter, air pressure regulator, air lubricator, air pressure gauge, air pressure limit valve, pump on/off control, oil pressure gauge.
- ✓ All pumps can work with water or oil.
- ✓ All pumps supplied complete with a full test certificate as standard.
- ✓ High pressure fittings and any length of high pressure hose available from stock.

Hydraulic Pressure Gauge: Dual scale bar/psi

Oil / Water Reservoir: 7 litres

Working Air Pressure: 1,7 to 6,9 bar

Air Inlet Port: 1/2" NPTF Female

Air Consumption: 0,79 m<sup>3</sup>/min

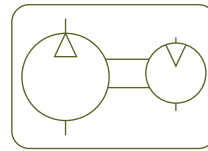
Sound Level: 90 dBA

Weight: 30 kg

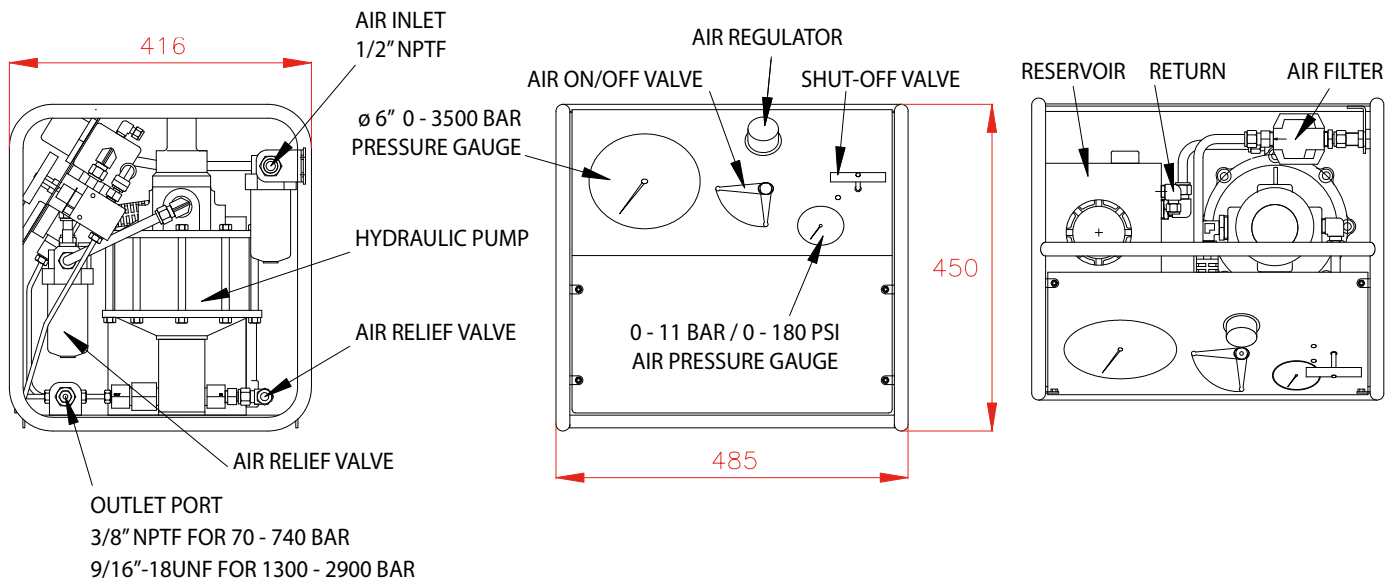




HYDROTEST AIR PUMPS



Type	<b>HAP</b>
Capacity	7 litres
Max. pressure	70 - 2.900 bar



HYDROTEST PUMPS

Hydrotest Pump	Maximum Hydraulic Pressure (bar)			Flow (l/min)			Outlet Port
	Air 6.9 bar	Air 5.1 bar	Air 4.1 bar	20% Max. P	50% Max. P	80% Max. P	
LARZEP							Female
HAP0070	70	55	40	16,2	11,0	3,7	3/8" NPT
HAP0130	130	100	80	8,5	6,0	3,9	3/8" NPT
HAP0180	180	150	100	6,1	4,7	2,6	3/8" NPT
HAP0250	250	200	150	4,1	3,1	2,0	3/8" NPT
HAP0400	400	320	240	2,6	1,8	1,2	3/8" NPT
HAP0740	740	600	440	1,2	0,9	0,6	3/8" NPT
HAP1300	1.300	1.000	770	0,65	0,5	0,3	9/16"-18UNF
HAP1900	1.900	1.500	1.100	0,4	0,3	0,2	9/16"-18UNF
HAP2900	2.900	2.300	1.800	0,25	0,2	0,1	9/16"-18UNF

## HYDROTEST HAND PUMPS



- ✓ Tanks from 12 to 100 litres.
- ✓ 13 models available, from 25 bar to 1.300 bar.
- ✓ Engineered and designed for easy operation.
- ✓ WAP models with cast iron or mild steel frame.
- ✓ WIP models with stainless steel frame. Used by the Chemical industry or when aggressive liquids are used.
- ✓ Supplied with pressure gauge and control valve.
- ✓ All pumps can work with water and oil.
- ✓ Pressure gauge: Dual scale bar / psi. / Class 1.6 up to 200 bar and Class 1.0 from 300 to 1.300 bar.

### WAP0025, WAP0035, WAP0045, WAP0050, WAP0100

- ✓ Manufactured in cast iron for heavy duty and professional uses.
- ✓ Supplied with pressure gauge ø60 mm and double control valve, except model WAP0035 that is supplied with single control valve.



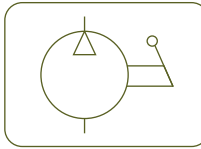
### WAP0300, WAP0500, WAP1000, WAP1300

- ✓ Hand pumps used for high pressure hydrostatic tests.
- ✓ 2 stage pumps with 100 litres tank manufactured in mild steel.
- ✓ Supplied with pressure gauge ø100 mm and control valve.



**HYDROTEST HAND PUMPS**

**WAP0040, WAP0070, WIP0040, WIP0200**



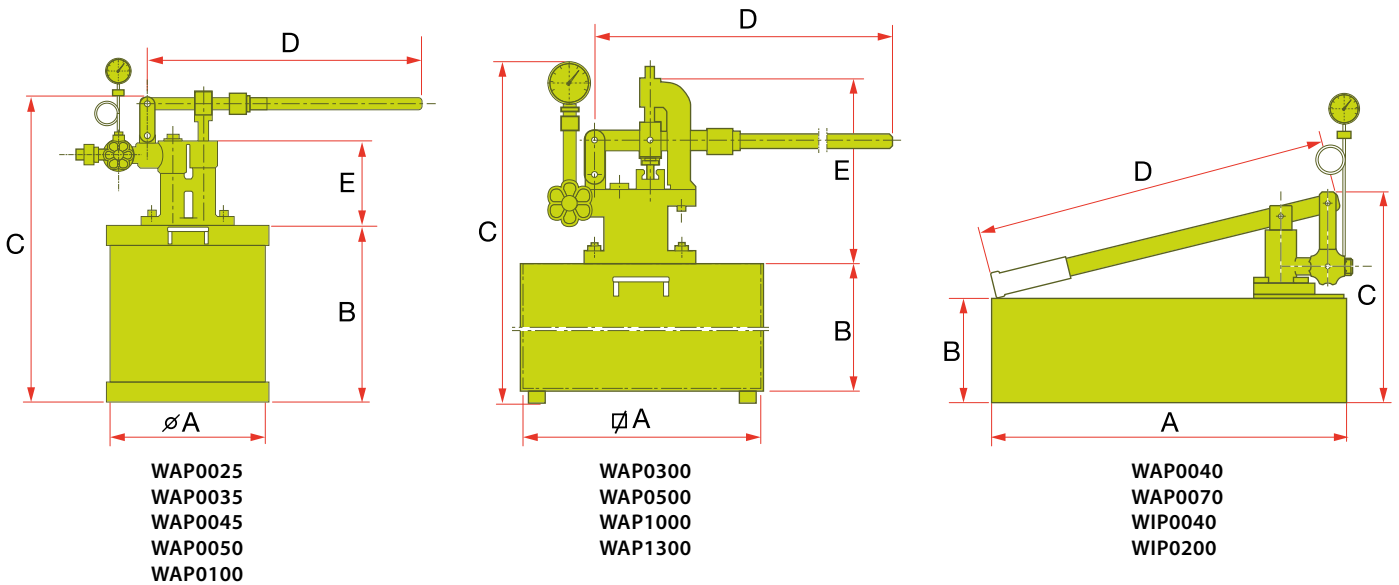
- ✓ Lightweight hand pumps manufactured in mild steel (WAP) and stainless steel (WIP) for use on bench in workshop hydrostatic tests.
- ✓ Supplied with pressure gauge ø60 mm, control valve and 13 litre tank.
- ✓ WIP0040 and WIP0200 models have stainless steel tanks. Used by the Chemical industry or when aggressive liquids are used.
- ✓ WAP0040 and WIP0040 pumps are supplied with 1.5 metre hose. These pumps are normally used on plumbing for heating plant testing.



Type **WAP - WIP**

Capacity **12 - 100 litres**

Max. pressure **25 - 1.300 bar**



**CAST IRON AND MILD STEEL PUMPS - WAP**

Hydrotest Pump	Max. Pressure	Oil Capacity	Flow / stroke	Material	Outlet Port	A	B	C	D	E	Weight
LARZEP	bar	litres	cc		BSP	mm	mm	mm	mm	mm	kg
WAP0025	25	12	11	Cast iron	3/8" Male	ø255	272	450	420	120	10
WAP0035	35	12	14	Cast iron	1/2" Female	ø255	272	430	350	100	8
WAP0045	45	21	14	Cast iron	3/8" Male	ø260	397	558	420	150	12
WAP0050	50	38	20	Cast iron	3/8" Male	ø390	397	558	683	150	22
WAP0100	100	38	20	Cast iron	3/8" Male	ø390	397	558	683	150	22
WAP0040	40	13	18	Mild steel	1/2" Male	500 x 190	140	280	500	-	8
WAP0070	70	13	11	Mild steel	1/2" Female	500 x 190	140	295	700	-	9
WAP0300	300	100	18 / 3,5	Mild steel	1/2" Female	500 x 500	400	800	800	400	54
WAP0500	500	100	18 / 3,5	Mild steel	1/2" Female	500 x 500	400	800	800	400	54
WAP1000	1.000	100	18 / 3,5	Mild steel	1/2" Female	500 x 500	400	800	1.000	400	60
WAP1300	1.300	100	18 / 3,5	Mild steel	1/2" Female	500 x 500	400	800	1.000	400	60

**STAINLESS STEEL PUMPS - WIP**

Hydrotest Pump	Max. Pressure	Oil Capacity	Flow / stroke	Material	Outlet Port	A	B	C	D	Weight
LARZEP	bar	litres	cc		BSP	mm	mm	mm	mm	kg
WIP0040	40	13	18	Bronze & SS	1/2" Male	500 x 190	140	280	500	8
WIP0200	200	13	18	SS	1/2" Female	500 x 190	140	295	700	14

WAP - WIP PUMPS

## ACCESSORIES




**LARZEP** offers a wide range of accessories to optimize our products performance: Hoses, Couplers, Tilting Saddles, Hollow Saddles, Flow Control Valves, Fittings, Manifolds and Pressure Gauges are available as standard.

- ✓ Wide range of standard hoses up to 10 metres and 700 bar working pressure.
- ✓ High flow couplers available as standard. 700 bar working pressure.
- ✓ Wide range of flow control valves: snubber valves, flow regulating valves with 2 or 4 outlets, manually operated check valve, single way flow regulating valve, check valve, pressure relief valve and pilot operated check valve.
- ✓ Tilting saddles highly recommended for side load application.  
Hollow saddles used in hollow piston cylinders specially in pulling and tensioning operations.
- ✓ Wide range of fittings and manifolds for multiple applications.
- ✓ Glycerine filled pressure gauges for monitoring working pressure and force.

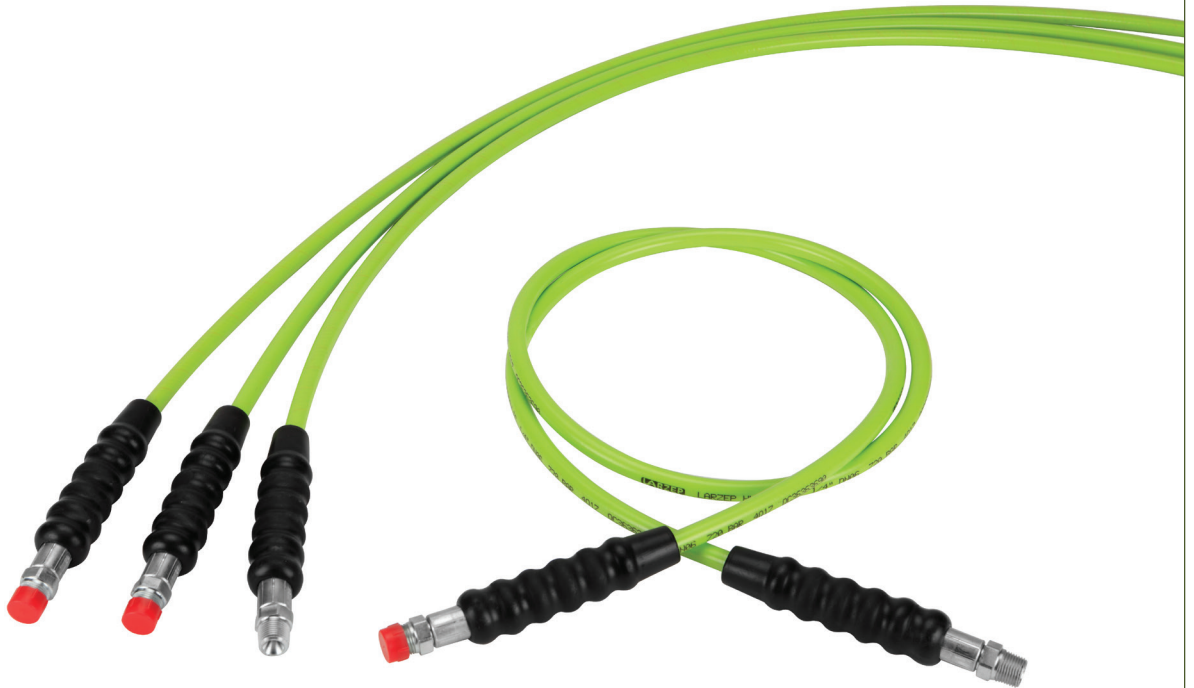


# ACCESSORIES



Models	Accessories type		Page
AP	Hydraulic Hoses		82
AZ89	Hydraulic Oil		83
AZ3	Hydraulic Couplers		84
AZ5	Flow Control Valves		86
AZ04 - AZ05 CATS	Saddles		88
AZ1	Fittings and Manifolds		90
AV	Pressure Gauges		92



**HYDRAULIC HOSES**

- ✓ 4:1 safety factor.
- ✓ Wide range of standard hoses. Hoses can be supplied in any length on request.
- ✓ Rubber guard on both ends.
- ✓ 3/8"-NPT thread on each end.
- ✓ Internal diameter 6,4 mm. Oil capacity: 35 cm<sup>3</sup> per metre.
- ✓ Minimum bending radius: 115 mm.

**WARNING**

**Never disconnect the hose when the system is pressurized.  
Never exceed the maximum working pressure of the hose.**



Apply 2 rounds of Teflon around all 3/8" NPT threads of the system, in the thread direction, leaving the first thread uncovered to prevent the tape breaking and entering the hydraulic system. Torque: 80 Nm.



**AZ3**

Coupler 3/8"-18 NPT



P.86

**HYDRAULIC HOSES and OIL**



Type

**AP - AZ**

Capacity

**0,8 - 10 m length**

Max. pressure

**700 bar**

**MAXIMUM WORKING PRESSURE 700 BAR**

Int. ø mm	End		Pressure bar	Length					
	1	2		0,8 m	1,5 m	2 m	3 m	6 m	10 m
6,4	3/8"-NPT	3/8"-NPT	700	AP2008	AP2015	AP2020	AP2030	AP2060	AP2100



- ✓ Highly refined quality oil.
- ✓ Additives to enhance film strength.
- ✓ Anti-wear properties.
- ✓ Anti-corrosion characteristics.
- ✓ Extreme pressure characteristics.
- ✓ Better conservation of the hydraulic circuits.

**HYDRAULIC OIL**

Model	Capacity (l)	For use with
AZ8901	5	Hand Pumps, Bottle Jacks
AZ8902	5	Powerpacks

**HYDRAULIC COUPLERS**

- ✓ High flow couplers, 40 litres/min.
- ✓ Working pressure: 700 bar. With 3/8"-18 NPTF thread.
- ✓ Male and female couplers can be supplied separately.
- ✓ Steel dust cup available for AZ3140 and AZ3141 couplers.
- ✓ AZ3120, AZ3140 and AZ3141: standard high-flow couplers.
- ✓ All standard cylinders are supplied with AZ3140 female coupler.

**WARNING**

**Never disconnect the hose when the system is pressurized.  
Never exceed the maximum working pressure of the hose.**

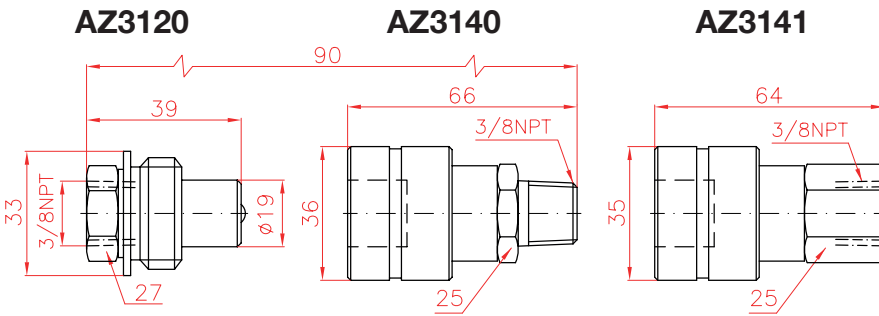


Apply 2 rounds of Teflon around all 3/8" NPTF threads of the system, in the thread direction, leaving the first thread uncovered to prevent the tape breaking and entering the hydraulic system. Torque: 80 Nm.



HYDRAULIC COUPLERS

HIGH-FLOW COUPLERS 700 BAR



Flow	Coupling	Model	Thread	Pressure
l/min		LARZEP	NPTF	bar
40	Male	AZ3120	Female 3/8"	700
	Female	AZ3140	Male 3/8"	700
	Female	AZ3141	Female 3/8"	700

Type **AZ3**

Capacity **40 l/min**

Max. pressure **700 bar**

Steel dust cap available:  
AZ3144 for female couplers AZ3140 and AZ3141



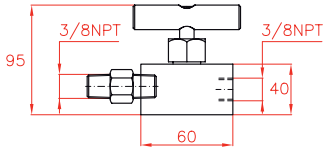
Rubber dust cap AZ3145 available  
to suit AZ3120, AZ3140 and AZ3141 couplers



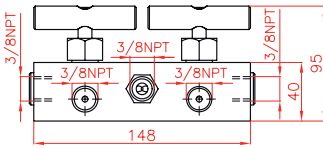
**FLOW CONTROL VALVES**



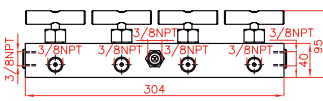
Model	SNUBBER VALVE	Symbol	
AZ5121	Used for flow control and load holding when closed. Also suitable for use as a gauge snubber.		



Model	MANIFOLD WITH FLOW REGULATING VALVE, 2 OUTLETS	Symbol	
AZ5122	Used for flow control of two outlets from one pressure source.		



Model	MANIFOLD WITH FLOW REGULATING VALVE, 4 OUTLETS	Symbol	
AZ5124	Used for flow control of four outlets from one pressure source.		





- ✓ All flow and pressure control valves are designed for 700 bar working pressure.
- ✓ All valves have 3/8"-NPTF pressure ports to prevent leakage.



Type **AZ5**

Capacity -

Max. pressure **700 bar**

Model	MANUALLY OPERATED CHECK VALVE	Symbol	
AZ5200	<p>When open, allows oil flow in both directions.</p> <p>When closed, allows oil flow in one direction only, holding the load in the other one.</p>		

Model	SINGLE WAY FLOW REGULATING VALVE	Symbol	
AZ5255	<p>Similar to AZ5200, allows free oil flow in one direction and in the other, flow can be regulated or completely closed.</p>		

Model	PILOT OPERATED CHECK VALVE	Symbol	
AZ5700	<p>Load holding valve used with double-acting cylinders which is released by pilot pressure from the return line.</p>		

**SADDLES**



**TILTING SADDLES AZ04 - CATS**

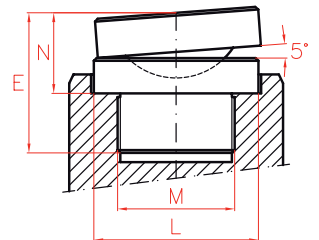
- ✓ Recommended for high side-load applications.
- ✓ These saddles allow up to 5° tilt angle.
- ✓ Push-in or threaded to suit different cylinder models.

**HOLLOW SADDLES AZ05**

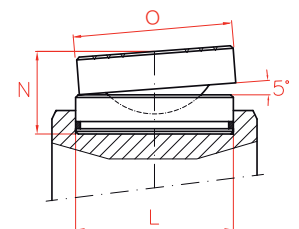
- ✓ Used in hollow piston cylinders.
- ✓ Specially used in pulling operations and as support.
- ✓ These saddles can be plain, threaded or solid.



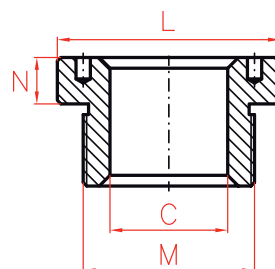
**AZ04 THREADED TILTING SADDLES**



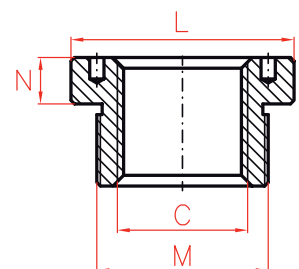
**AZ04 - CATS TILTING SADDLES**



**AZ05 HOLLOW SADDLES**



Standard Plain



Optional Internal Thread



## AZ04 - THREADED TILTING SADDLES

Model	L	M	N	E	Weight	Cylinder Model
LARZEP	mm		mm	mm	kg	
AZ0420	28	1"-8	29	43	0,2	D010
AZ0423	35	1"-8	29	49	0,3	D020
AZ0421	45	1 1/2"-16	28	50	0,4	D030
AZ0422	61	1 3/4"-12	38	58	0,7	D050-D075-D100
AZ0424	88	2 1/2"-12	47	82	2,5	D150
AZ0425	111	2 1/2"-12	52	107	4,5	D200
AZ0431	34	M28 x 1,5	29	44	0,3	SSH012
AZ0432	48	1 9/16"-16	29	46	0,5	SSH022
AZ0433	55	1 13/16"-16	37	57	0,6	SSH030-SAH030-DDH030-DAH030
AZ0434	80	2 3/4"-16	47	67	2,3	SSH060-SAH060-DDH060-DAH060
AZ0435	116	2 1/2"-12	52	76	5,5	SSH100-SAH100-DDH100-DAH100

Type **AZ04-05, CATS**

Capacity -

Max. pressure **700 bar**

## AZ04 - CATS - TILTING SADDLES

Model	L	N	O	Weight	Cylinder Model
LARZEP	mm	mm	mm	kg	
AZ0401	45	36	45	0,4	SAM030
AZ0402	61	39	61	0,8	SAM050-DDA050
AZ0404	88	47	88	2,2	SAM100-SAM140-DDA100
CATS12	35	14	35	2,1	SSM010-SSM015
CATS13	35	20	35	1,3	SSP010
CATS50	50	34	71	1	CPC050-CDC050
CATS52	50	15	50	0,6	SSM023-SSM030
CATS53	50	25	50	1,8	SSP020-SSP030-SSP050
CATS100	71	30	71	1,5	SSM050-SSM075-SSM100-CTC050-CTC100
CATS101	75	30	71	1,5	CPC100-CDC100
CATS103	71	35	71	1,8	SSP100
CATS150	94	39,2	97	3	CPC150-CDC150
CATS200	113	43	126	4,4	CPC200-CDC200
CATS201	130	43	126	5	CTC150-CTC200
CATS250	145	64	175	10	CPC250-CDC250
CATS251	150	67	175	11	CTC250
CATS500	179	77	230	20	CTC500
CATS600	194	81,5	250	24	CTC600
CATS800	224	86,5	275	32	CTC800
CATS1000	249	105,5	300	46	CTC1000

## AZ05 - HOLLOW SADDLES

Standard Plain					Cylinder Model
Model	C	L	M	N	
LARZEP	mm	mm		mm	
AZ0531	19,5	34	M28 x 1,5	7	SSH012
AZ0532	27,0	48	1 9/16"-16	8	SSH022-SAH022
AZ0533	33,4	55	1 13/16"-16	9	SSH030-SAH030-DDH030-DAH030
AZ0536	56,0	80	2 3/4"-16	12	SSH060-SAH060-DDH060-DAH060
AZ0540	81,0	116	4"-16	13	SSH100-SAH100-DDH100-DAH100
AZ0545	81,0	135	4 1/4"-16	20	DDH150

**FITTINGS AND MANIFOLDS**

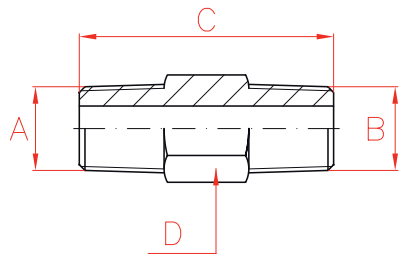


✓ Wide range of fittings and manifolds for multiple applications.

**HEXAGON NIPPLE**



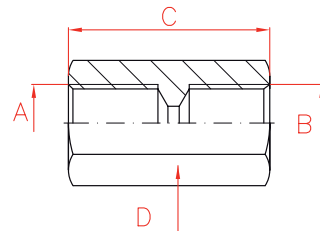
Model	A	B	C	D
LARZEP			mm	mm
<b>AZ1102</b>	3/8"-NPT	3/8"-NPT	45	19



**COUPLING**



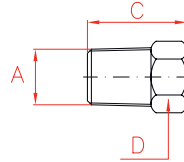
Model	A	B	C	D
LARZEP			mm	mm
<b>AZ1143</b>	3/8"-NPT	3/8"-NPT	45	27



PLUG



Model	A	C	D
LARZEP		mm	mm
<b>AZ1182</b>	3/8"-NPT	24	18



Type

**AZ1**

Capacity

-

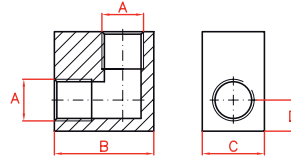
Max. pressure

**700 bar**

ELBOW



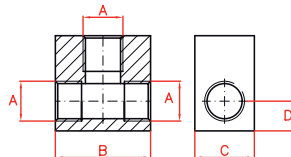
Model	A	B	C	D
LARZEP		mm	mm	mm
<b>AZ1202</b>	3/8"-NPT	40	25	12,5



TEE



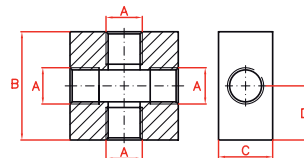
Model	A	B	C	D
LARZEP		mm	mm	mm
<b>AZ1242</b>	3/8"-NPT	40	25	12,5



CROSS



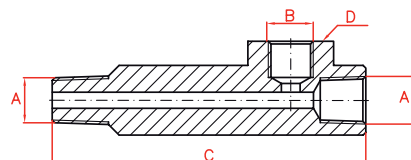
Model	A	B	C	D
LARZEP		mm	mm	mm
<b>AZ1282</b>	3/8"-NPT	50	25	24



GAUGE ADAPTOR



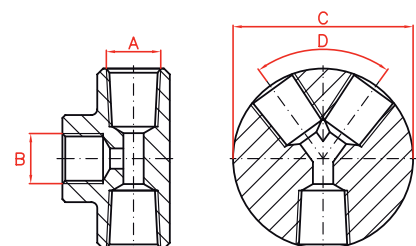
Model	A	B	C	D
LARZEP			mm	mm
<b>AZ1502</b>	3/8"-NPT	1/4"-NPT	98	35
<b>AZ1504</b>	3/8"-NPT	1/2"-NPT	117	35



MANIFOLDS



Model	A	B	C	D	Ports
LARZEP			mm	°	No.
<b>AZ1604</b>	3/8"-NPT	1/2"-NPT	82	60°	4
<b>AZ1606</b>	3/8"-NPT	1/2"-NPT	102	48°	6





## PRESSURE GAUGES



- ✓ High accuracy gauges,  $\pm 1,6$  % full scale.
- ✓ Essential for monitoring working pressure or force.
- ✓ Glycerine filled gauges.
- ✓ Available as system pressure gauges or as dual scale gauges to measure load on specific cylinders.



**AZ1**  
FITTINGS AND MANIFOLDS



P.92

**AP2**  
Hoses



P.84

**PRESSURE GAUGES**



Type

**AV**

Diameter

**63 - 100 mm**

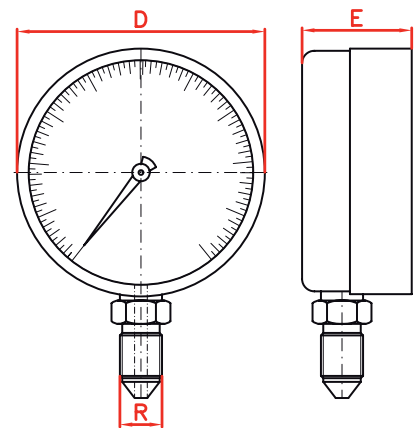
Max. pressure

**0 - 1.000 bar**



**WARNING**

Do not exceed the 70% of the nominal capacity of the gauge.



Used with	Model	End of Scale			Scale	D	E	R	Gauge Adaptor
		ton	bar	psi					
All Cylinders	<b>AV10007</b>	-	1.000	14.500	50 bar / 500 psi	63	31	1/4"-NPT	AZ1502
	<b>AV10011</b>	-	1.000	14.500	20 bar / 200 psi	100	35	1/2"-NPT	AZ1504

## HYDRAULIC TOOLS



**LARZEP** offers a wide range of tools for different applications: Pullers and Spread Cylinders.

- ✓ Wide range of pullers from 5 to 50 ton to cover most pulling applications.  
Available in 2 and 3 Jaws puller, cross bearing puller, bearing cup puller and bearing puller.
- ✓ Spread cylinders are used for many tasks in confined access situations.



# TOOLS



Models	Tool type	Capacity ton (kN)		Page
FU - FV	Hydraulic Pullers	5 - 50		96
CY	Spread Cylinders	0,8 - 15 (8 - 150)		99

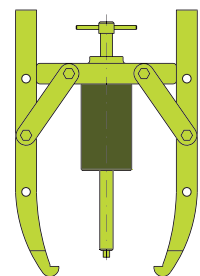


**HYDRAULIC PULLERS**

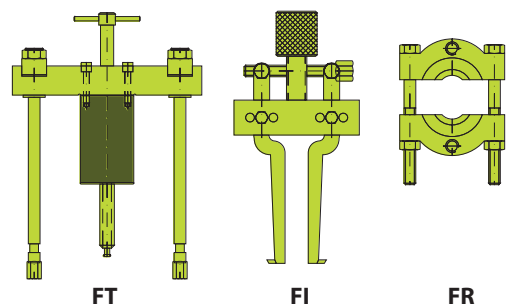


- ✓ Wide range of models from 5 to 50 ton capacity suitable for most maintenance pulling applications.
- ✓ All pullers are delivered in a strong wooden box for ease of transport and storage.
- ✓ Manufactured in high quality forged steel, includes hydraulic and all mechanical components.
- ✓ All pullers are supplied with: cylinder, pump, hose, pressure gauge, gauge adaptor, male coupling and hollow saddle.
- ✓ FU Universal puller includes 2 and 3 jaws, cross bearing, long and short extensions, Bearing and bearing cup pullers.
- ✓ FV Jaw pullers only include 2 and 3 jaws configuration.

**FV Jaws puller**



**FZ Cross bearing pullers**





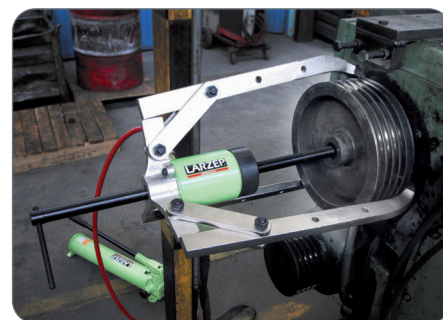
HYDRAULIC PULLERS



Type **FU - FV**

Capacity **5 - 50 ton**

Max. pressure **700 bar**



**HYDRAULIC PULLER SETS - FU**

(Include hydraulic and mechanic part)

Capacity (ton)	5	10	20	30	50
Model	FU05	FU10	FU20	FU30	FU50
Weight (kg)	20	35	80	145	315
Cylinder	SSM00518	SSH01204P	SSH02205	SSH03006	SSH06008
Pump	W20307	W20307	W10607	W20807	W21907
Hose	AP2015	AP2015	AP2015	AP2015	AP2020
Gauge adaptor	AZ1502	AZ1502	AZ1502	AZ1502	AZ1502
Pressure gauge	AV10007	AV10007	AV10007	AV10007	AV10007
Male half coupling	AZ3120	AZ3120	AZ3120	AZ3120	AZ3120
Hollow saddle	-	AZ0551	AZ0552	AZ0553	AZ0556

**PULLER MECHANICAL PARTS**

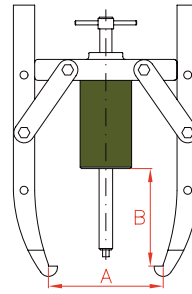
Capacity (ton)	5	10	20	30	50	FV
Model	FU05	FU10	FU20	FU30	FU50	
Jaw	FU0507	FU1007	FU2007	FU3007	FU5007	3
3 Jaws crosshead	-	-	FU2008	FU3008	FU5008	✓
2 Jaws crosshead	-	-	FU2009	FU3009	FU5009	✓
2 and 3 Jaws crosshead	FU0508	FU1008	-	-	-	✓
Arms	FU0510	FU1010	FU2010	FU3010	FU5010	6
Jaws bolts + Nuts	FU0511	FU1011	FU2011	FU3011	FU5011	6
Slinde + Handle	-	FU1012	FU2012	FU3012	FU5012	✓
Short bolts (2)	-	14A0330	14A0074	14A0075	14A0076	✓
Bearing puller	FR1000	FR1000	FR2000	FR3000	FR5000	-
Gross crosshead	FU0517	FU1017	FU2017	FU3017	FU5017	-
Blank nuts (2)	FU1018	FU1018	FU2018	FU3018	FU5018	-
Washer (2)	FU1019	FU1019	FU2019	FU3019	FU5019	-
Slides (2)	FU0520	FU1020	FU2020	FU3020	FU5020	-
Fixing nuts (2)	FU0521	FU1021	FU2021	FU3021	FU5021	-
Large extenders (2)	FU0522	FU1022	FU2022	FU3022	FU5022	-
Short extenders (2)	FU0523	FU1023	FU2023	FU3023	FU5023	-
Bearing cup puller	-	FI1000	FI2000	FI3000	FI5000	-
Point protector	FU0525	FU1025	FU2025	FU5025	FU5025	✓
Connection nuts (2)	14B0050	14B0051	14B0029	14B0030	14B0031	-
Long bolts (2)	-	14A0331	14A0098	14A0099	14A0100	-

✓ Included - Not available

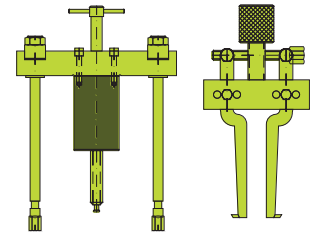
### JAWS PULLER FV

Capacity	2 and 3 jaws			
	Model	A max.	B max.	Weight*
ton	LARZEP	mm	mm	kg
5	FV05	240	225	7
10	FV10	350	320	20
20	FV20	480	320	39
30	FV30	680	390	61
50	FV50	980	710	131

\*Total weight of all components



FV

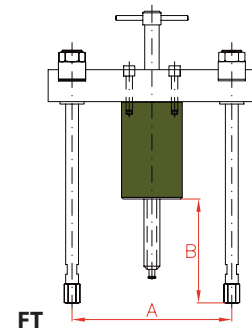


FT

FI

### SIMPLE CROSS BEARING PULLER

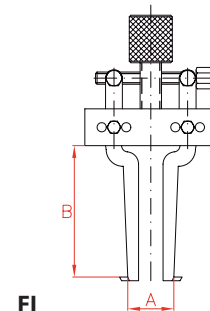
Capacity	A min.	A max.	B max.	Weight
ton	mm	mm	mm	kg
5	40	185	170	7
10	115	260	300	8
20	170	345	265	19
30	185	440	284	37
50	220	580	447	71



FT

### BEARING CUP PULLER

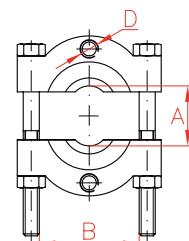
Capacity	A min.	A max.	B	Weight
ton	mm	mm	mm	kg
10	40	145	115	2,2
20	40	145	115	2,4
30	60	240	150	6,0
50	60	240	150	6,4



FI

### BEARING PULLER

Capacity	A min.	A max.	B	D
ton	mm	mm	mm	UN
5 - 10	10	110	130	5/8" UNF-18
20	12	134	155	5/8" UNF-18
30	17	250	260	1" UNF-14
50	35	300	300	1 1/4" UNF-12



FR



## WEDGE SPREADER



Type

**CY**

Capacity

**15 ton**

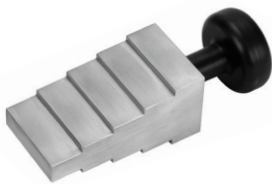
Max. pressure

**700 bar**

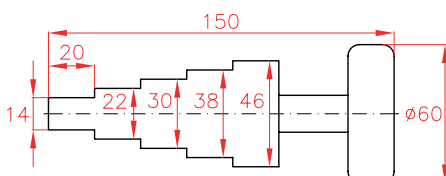
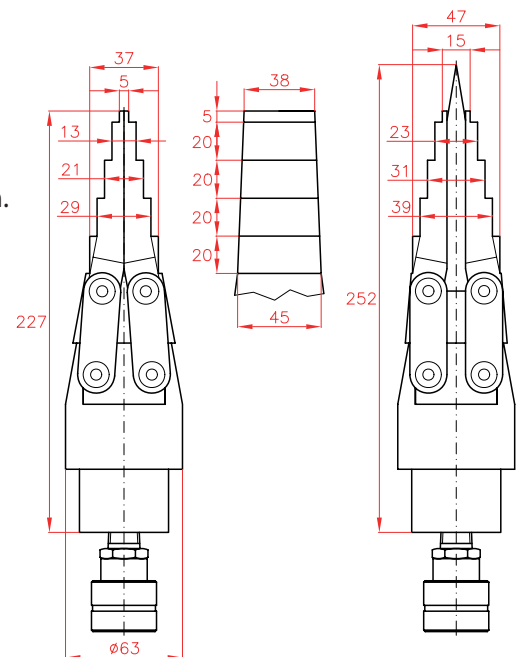
## WEDGE SPREADER



- ✓ 15 ton capacity wedge spreader.
- ✓ Lightweight and ergonomic tool. Easy and quick maintenance.
- ✓ Specially designed for pipe and flange repair and maintenance. Can be used also for seal replacement, removing elbows or heavy equipment maintenance.
- ✓ Required access gap of only 5 mm.
- ✓ Suitable for harsh offshore environment due to corrosion protection.
- ✓ Recommended to be used in pairs.
- ✓ Options: Aluminium Safety block **CY15B**; Handle **CY15H**; Kit **CY1501S**, with pump and 2 wedge spreaders and accessories.



Aluminium Safety Block **CY15B** as option.



Capacity	Model	Oil Capacity	Access Gap	Max. open width	Weight
ton	LARZEP	cm <sup>3</sup>	mm	mm	kg
15	CY1501	16	5	47	3,2

**SPREAD CYLINDERS**

**SPREAD CYLINDERS**



Type **CY**

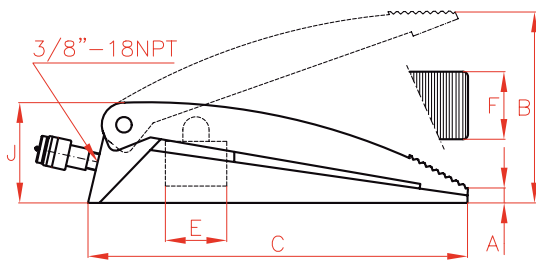
Capacity **0,8 - 1 ton**

Max. pressure **700 bar**

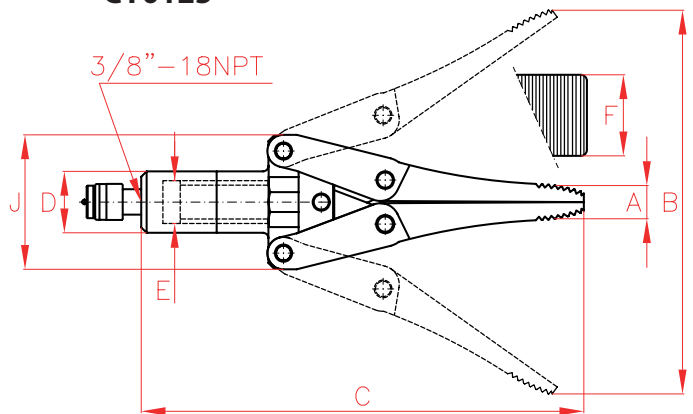


- ✓ CY series spreaders are used for many tasks in confined access situations.
- ✓ CY0110 is used for very confined situations and CY0125 is used for greater spreading distance.
- ✓ CY0110 and CY0125 models are supplied with AZ3140 high-flow female couplers.

**CY0110**



**CY0125**



Capacity		Stroke	Model	Oil Cap.	Area	A	B	C	D	E	F	J	Weight
ton	kN	mm	LARZEP	cm <sup>3</sup>	cm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg
1	9	75	<b>CY0110</b>	10	6,5	15	90	168	-	28	55	54	2
0,6	6	255	<b>CY0125</b>	64	14,5	35	290	487	58	42	53	158	11



Always read the safety instructions.



# APPLICATIONS

## APPLICATIONS AND SPECIAL PRODUCTS

With more than 75 years of experience in the hydraulic sector, LARZEP designs and manufactures high pressure hydraulic equipment for the movement of heavy loads, including cylinders up to 1.000 ton lifting capacity.

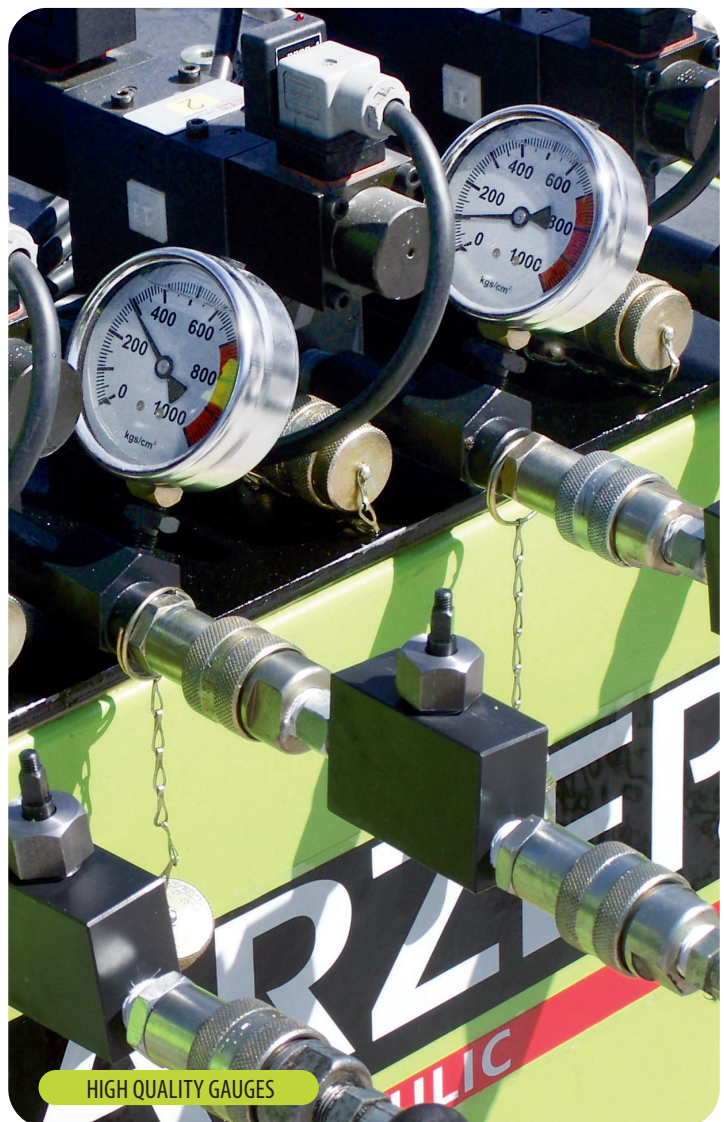
All our cylinders are designed according to ANSI B30.1 / EN1494 and manufactured in our production

facility located in Mallabia, in the North of Spain. Our biggest advantage against our competitors is our flexibility and quick delivery time.

Contact our Sales Department to discuss your requirements, indicating type of product, quantity, capacity, stroke, or any another additional feature you may require.



HIGH TONNAGE CYLINDERS



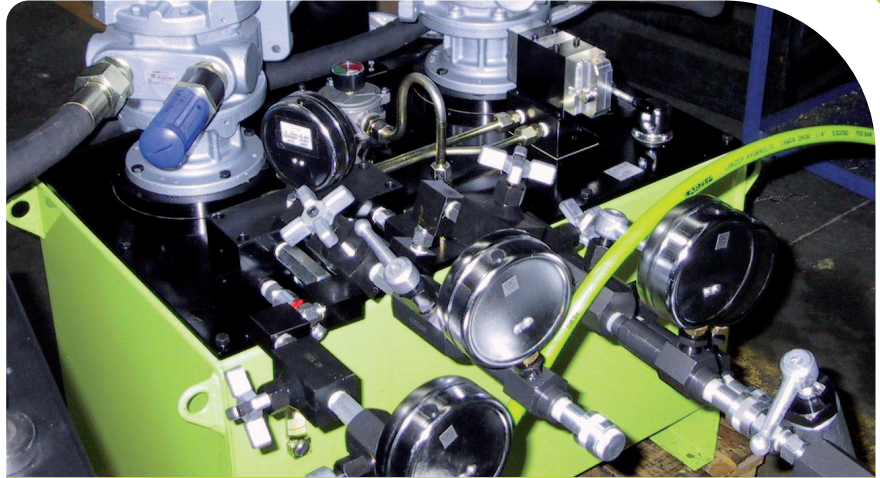
HIGH QUALITY GAUGES







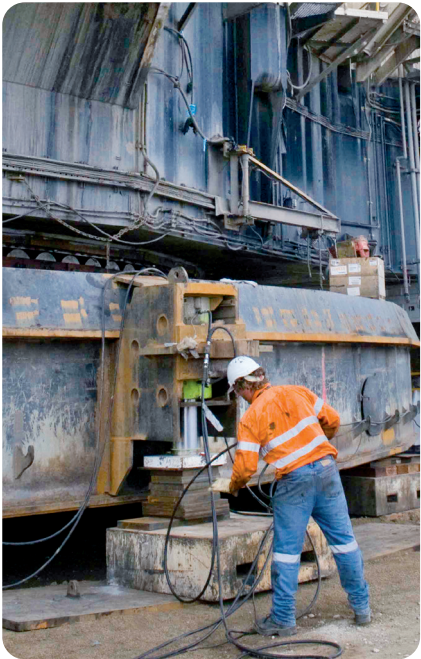
# APPLICATIONS



## OIL RIG RETRIEVAL

A hanger retrieval system developed with LARZEP products, for a major Oil & Gas operator in the North Sea.

The system consists of 4 double acting 215 ton Hollow Bore Cylinders with 460 mm stroke, completely black nitrided to avoid rust in the North Sea environment and 2 pneumatic powered hydraulic pumps with safety double circuit each.



## LIFTING SYSTEM FOR MAINTENANCE

Larzep supplied seven 500 ton lifting cylinders for the tub lift-and-split, and twenty-two 100 ton cylinders to work on the 6400 ton Marion dragline. Also supplied was an electric power pack incorporating electronically controlled valving via a PLC - all controlled by a laptop.

The purpose of the job was to remove the Marion 8750 Series B's tub, weighing 942 ton to allow maintenance to take place. This was considered a world-first for the mining industry. Two jacking frames, each with 1.000 ton working load limit were used for the procedure. Each jacking frame housed two 500 ton Larzep cylinders.



## SAFETY INSTRUCTIONS

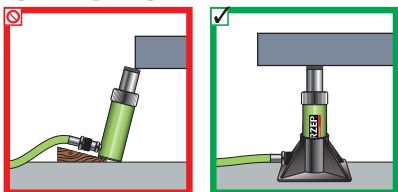
When used correctly, hydraulic power is one of the safest methods of applying force to your work. To that end we offer some **DO's and DON'Ts**, simple common sense points which apply to practically all Larzep hydraulic products.

The illustrations and application photos of Larzep products throughout this catalogue are used to portray how some of our customers have used hydraulics in industry. In designing similar systems, care must be taken to select the proper components that provide safe operation and fit your needs.

Check to see if all safety measures have been adopted to avoid the risk of injury and property damage from your application or system. Larzep cannot be held responsible for damage or injury caused by unsafe use, maintenance or application of its products. Please contact the Larzep office or a representative for guidance when you are in doubt as to the proper safety precautions to be taken in designing and setting up your particular system.

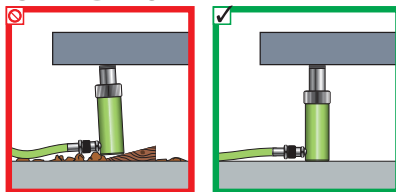
In addition to these tips, every Larzep product comes with specific safety information and instructions. **Please read them carefully.**

### CYLINDERS



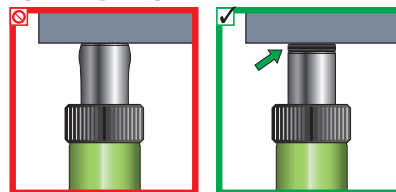
Provide a solid support for the entire cylinder base area. Use cylinder base attachment for more stability.

### CYLINDERS



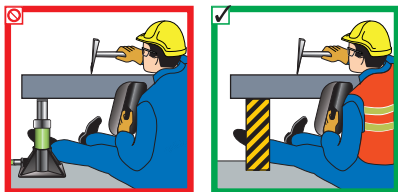
The entire cylinder saddle must be in contact with the load. Movement of the cylinder must be parallel with the movement of the load.

### CYLINDERS



Do not use cylinder without saddle. This will cause plunger to "mushroom". Saddles distribute load evenly on the plunger.

### CYLINDERS



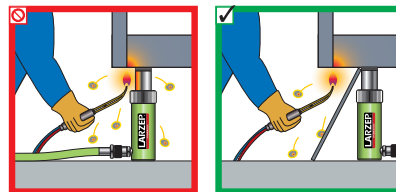
Never place any part of your body under the load. Load must be on cribbing before venturing under.

### CYLINDERS



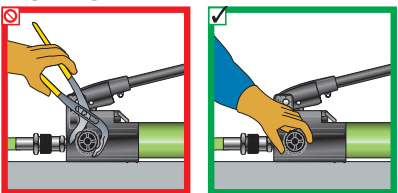
Always protect cylinder threads for use with attachments.

### CYLINDERS



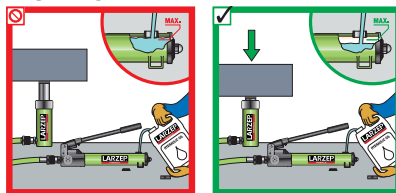
Keep hydraulic equipment away from open fire and temperatures above 65 °C.

### PUMPS



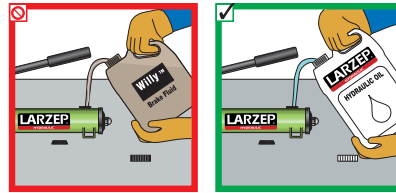
Close release valve hand tight. Using tools will ruin the valve.

### PUMPS



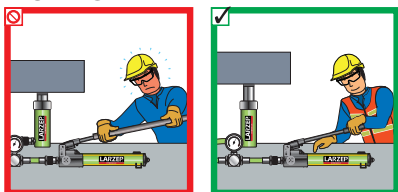
Fill pump only to recommended level. Fill only when connected cylinder is fully retracted.

### PUMPS



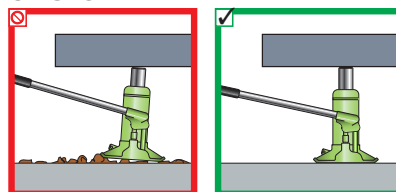
Always use genuine Larzep hydraulic oil.

### PUMPS



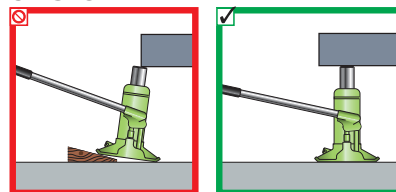
Don't use handle extenders. Hand pumps should be easy to operate when used correctly.

### JACKS



Provide a leveled and solid support for the entire jack base area.

### JACKS



The entire jack saddle must be in contact with the load. Movement of the load must be in the same direction as jack plunger.



# SAFETY

**For your application, choose the most suitable model from the wide range available, and make sure that it will **not exceed 80%** of its nominal capacity and stroke during normal operation.**

The correct union of a pump to a cylinder via a hydraulic hose constitutes a machine designed for lifting, pulling, folding and retaining operations, etc., that, due to its high thrust capacity requires safe use in order to avoid accident risk.

Use protective goggles for eye protection. Use safety shoes for feet protection. Use protective gloves for hand protection.

Do not modify the device (welded parts, lengthening drive levers, etc.).

Do not use the hoses for transporting the device. Use the handles on the cylinders (when appropriate) and set the pump lever to the transport position.

When filling the pump with oil, use always LARZEP hydraulic oil. Fill only to the indicated level and remember that the cylinder piston should be retracted.

Before using a pump from other manufacturer, contact LARZEP's Technical Department. Otherwise, LARZEP will not be liable for any damage that may arise.

Before starting operation, check that the installation is correct, the operator position is safe and the working zone is out of bounds to all personnel.

In all cases, the operator should have received adequate training regarding the handling of the device and logical safety criteria associated with the movement of heavy loads.

Never exceed the maximum working pressure of the cylinder. Ensure that all the equipment and accessories are suitable for the maximum working pressure.



*Always read the safety instructions.*



**JACKS**

Remove the jack handle when it is not being used.

**JACKS**

Never place any part of your body under the load. Ensure the load is on a solid support before venturing under.

Always read instructions and safety warnings that come with your Larzep hydraulic equipment.

**HOSES AND COUPLERS**

Clean both coupler parts before connecting. Use dust caps when coupler parts are not connected.

**HOSES AND COUPLERS**

Keep hoses away from the area beneath loads.

**HOSES AND COUPLERS**

Don't lift hydraulic equipment by the hoses.

**HOSES AND COUPLERS**

Detach cylinder only when fully retracted or use shut-off valves or safety valves to lock cylinder pressure.

**HOSES AND COUPLERS**

Don't kink hoses. Bending radius should be at least 115 mm. Don't drive over or drop heavy objects on hoses.

**HOSES AND COUPLERS**

Never allow the cylinder to be lifted off of the ground through the couplers.

## CYLINDER SELECTION

In order to select the right cylinder according to your needs, please answer these questions:

- Total load to lift: \_\_\_\_\_ tonne / kg
- Number of cylinders required: \_\_\_\_\_
- Stroke required: \_\_\_\_\_ millimetres
- Closed height required: \_\_\_\_\_ millimetres
- Single or Double acting cylinder: \_\_\_\_\_
- Hollow or Solid piston: \_\_\_\_\_
- Spring or Load return: \_\_\_\_\_
- Push or Pull application: \_\_\_\_\_
- Locknut is required? \_\_\_\_\_
- Tilting saddle is required? \_\_\_\_\_
- Threads, Attachments, are required? \_\_\_\_\_
- Special treatment is required? \_\_\_\_\_



**ATTENTION: DO NOT EXCEED  
THE 80% OF THE NOMINAL CAPACITY  
AND STROKE OF THE CYLINDER**



Taking into account all the above, we will show you all the different options you can use. To choose the cylinder required, keep in mind the type of application.

Our internal sales department can advise and help you with the right choice of cylinders, specific to your project.

Visit our website [www.larzep.com](http://www.larzep.com) and find the applications of each type of cylinder.



# SELECTION TABLES

## PUMP SELECTION

In order to select the right pump according to your needs, please answer these questions:

### HAND PUMPS

Single or Double acting: \_\_\_\_\_

Number of cylinders required: \_\_\_\_\_

Cylinder capacity: \_\_\_\_\_ ton

Cylinder stroke: \_\_\_\_\_ millimetres

Total hose length: \_\_\_\_\_ metres



### POWERPACKS

Single or Double acting: \_\_\_\_\_

Number of cylinders required: \_\_\_\_\_

Cylinder capacity: \_\_\_\_\_ ton

Cylinder stroke: \_\_\_\_\_ millimetres

Total hose length: \_\_\_\_\_ metres

Manual or Solenoid valve: \_\_\_\_\_

Load holding is required? \_\_\_\_\_

Single or Three phase: \_\_\_\_\_

Voltage: \_\_\_\_\_ V

Frequency: \_\_\_\_\_ Hz

Remote pendant (for HBM) is required? \_\_\_\_\_

Roll bar or Pressure gauge are required? \_\_\_\_\_

1. Select the right cylinder, keeping in mind the recommended use of **80%** of its nominal rating of both, load and stroke.
2. Select the pump according to the oil volume and the number of cylinders in operation.

Use the table below as guideline. It is supposed the use of only one cylinder. For several cylinders, add oil capacities.

Capacity	Stroke (mm)												
	25	50	75	100	125	150	175	200	225	250	300	325	350
5	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	Red	Red	Red
10	Blue	Blue	Blue	Blue	Blue	Red	Red	Red	Red	Red	Red	Green	Green
15	Blue	Blue	Red	Red	Red	Red	Red	Red	Red	Red	Green	Green	Green
23	Red	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green	Yellow	Yellow
30	Red	Red	Red	Red	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Yellow
50	Red	Red	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Blue	Blue	Blue
75	Red	Green	Green	Yellow	Yellow	Yellow	Yellow	Blue	Blue	Blue	Blue	Blue	Blue
100	Red	Green	Green	Yellow	Yellow	Yellow	Blue	Blue	Blue	Blue	Blue	Purple	Purple
140	Green	Yellow	Yellow	Blue	Blue	Blue	Blue	Purple	Purple	Purple	Purple	Purple	Purple
220	Green	Yellow	Blue	Blue	Blue	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple

- Blue: Single Acting W20307, Double Acting X22607
- Red: Single Acting W10607 - W20807, Double Acting X22607
- Green: Single Acting W11407 - W21907, Double Acting X22607
- Yellow: Single Acting W22607, Double Acting X22607
- Cyan: Single Acting W24507, Double Acting X24507
- Purple: Single Acting W26507, Double Acting X26507
- Pink: Single Acting HBM, HBE, Double Acting HBM, HBE

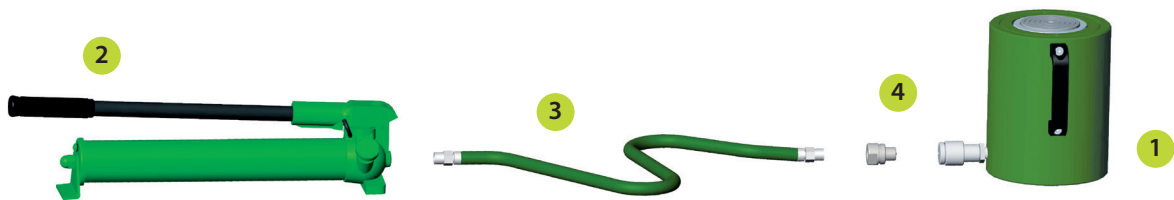
**NOTE:** Add 35cc of oil per metre of hose used when the internal diameter of the hose is 6,4 mm.

Visit our website [www.larzep.com](http://www.larzep.com) for the online Cylinder or Pump Selection application.

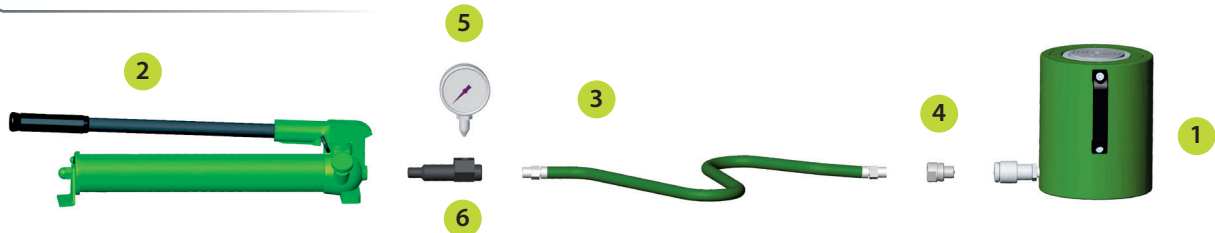
## SINGLE ACTING ASSEMBLIES

- 1 Cylinder
  - 2 Pump / Powerpack
  - 3 Hose
  - 4 Male Coupler
  - 5 Pressure Gauge
  - 6 Gauge Adaptor
  - 7 Flow Regulating Valve
  - 8 Check Valve
  - 9 Female Coupler
  - 10 Snubber Valve
  - 11 Pilot Operated Check Valve
  - 12 Tee
- \* Optional  
+ Female coupler included in the cylinder

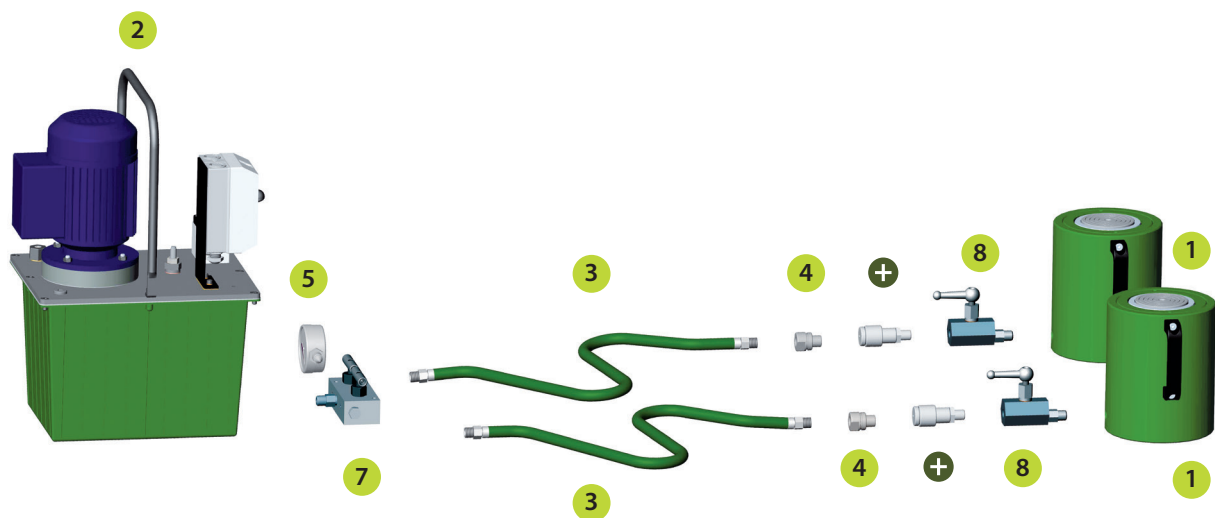
### BASIC SYSTEM SETUP



### COMPLETE SYSTEM



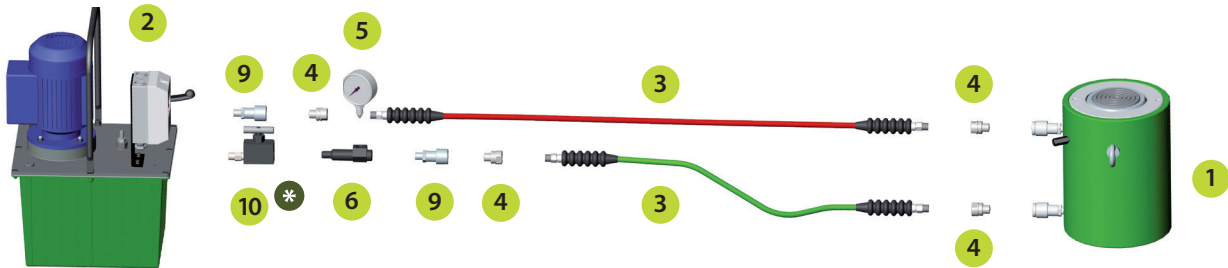
### COMPLETE SYSTEM WITH SEVERAL CYLINDERS



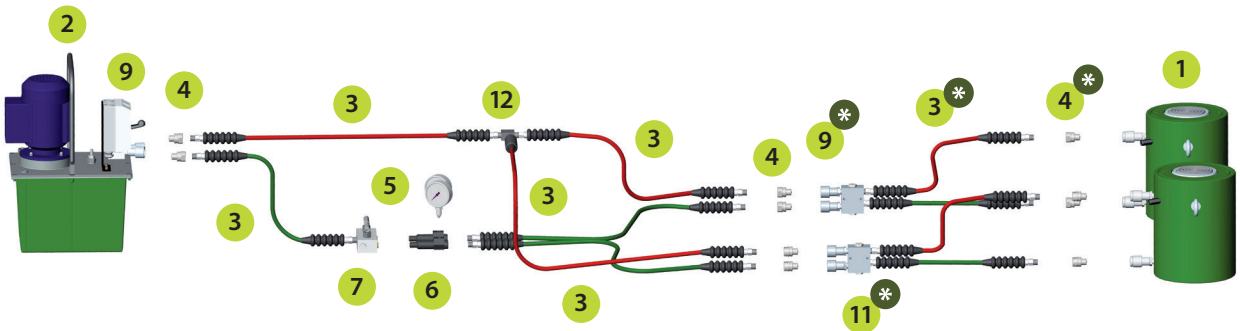
# SYSTEM ASSEMBLIES

## DOUBLE ACTING ASSEMBLIES

### BASIC SYSTEM



### COMPLETE SYSTEM WITH SEVERAL CYLINDERS



## VALVE INFORMATION

### CONTROL OF SINGLE ACTING CYLINDERS

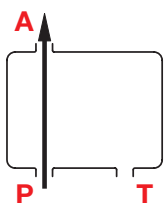
Single acting cylinders require 3-way valve.

3-way valve has 3 ports: P pump, T tank and A cylinder.

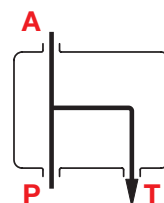
3-way valve can have 2 or 3 positions.

**2 position valve** can only control the advance or the retraction of the cylinder.

**ADVANCE:** Oil flows from the pump P to the cylinder A. The cylinder will extend.

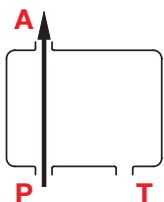


**RETRACT:** Oil flows from the cylinder A and pump P to the tank T. The cylinder will retract.

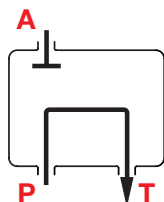


**3 position valve** controls advance, hold and retraction of the cylinder.

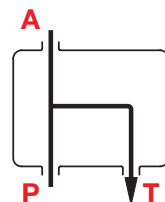
**ADVANCE:** Oil flows from the pump P to the cylinder A. The cylinder will extend.



**HOLD:** Oil flows from the pump P to the tank T. A port is closed and holds the pressure maintaining the extended position.



**RETRACT:** Oil flows from the cylinder A and pump P to the tank T. The cylinder will retract.



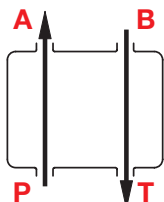
### CONTROL OF DOUBLE ACTING CYLINDERS

Double acting cylinders require 4-way valve.

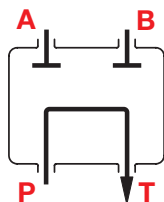
4-way valve has 4 ports: P pressure, T tank, A advance and B retract.

4-way valve has 3 positions. 3 position valve can advance, hold and retract the cylinder.

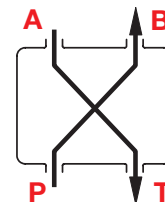
**ADVANCE:** Oil flows from the pump P to the advance port A and from the return port B to the tank T. The cylinder will extend.



**HOLD:** Oil flows from the pump P to the tank T. A and B ports are closed and hold the pressure maintaining the extended position.



**RETRACT:** Oil flows from the pump P to the retract port B and from the advance port A to the tank T. The cylinder will retract.



# TECHNICAL INFORMATION

## BASIC HYDRAULICS

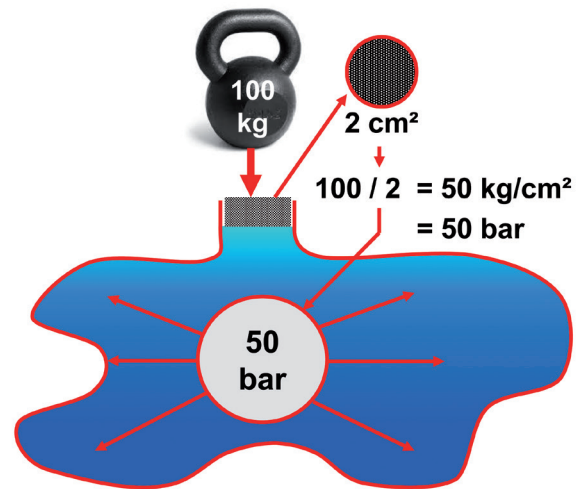
### PASCAL'S LAW

Pressure applied at any point upon a confined fluid is transmitted undiminished in all directions.

The hydraulic pressure at any point within the fluid is the same in all directions.

Hydraulic pressure is measured as a force per unit of area:

$$\text{kg} / \text{cm}^2 \approx \text{bar}$$



### FORCE

The force that a hydraulic cylinder can apply depends on the effective area of the cylinder and the hydraulic pressure.

Force (kg) = Hydraulic Pressure (bar) x Cylinder Effective Area (cm<sup>2</sup>)

$$F (\text{kg}) = P (\text{bar}) \times A (\text{cm}^2)$$

### OIL CAPACITY

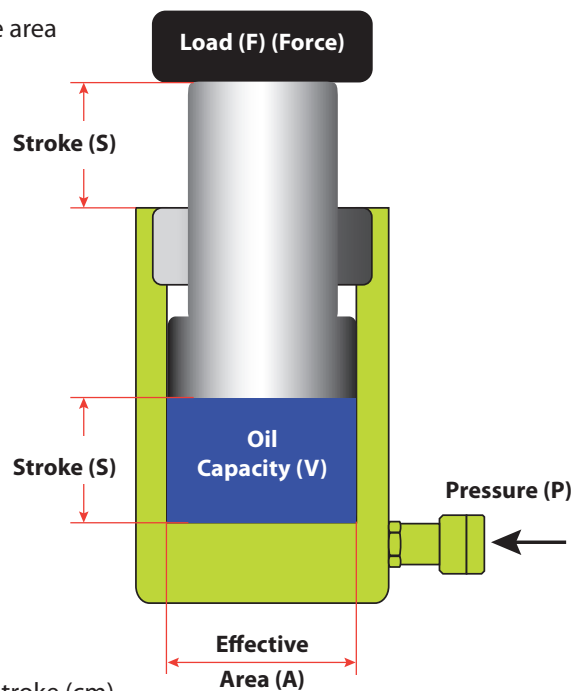
When a hydraulic cylinder is operated by a hand pump, the cylinder plunger moves a certain distance per pump actuation. This distance depends on the cylinder's effective area and on the pump's oil flow per stroke.

Minimum effective tank volume of pump is the sum of the oil volume of all cylinders and all hoses.

The volume of oil required for a cylinder is which need to achieve the full stroke of the cylinder.

Cylinder Oil Capacity (cm<sup>3</sup>) = Cylinder Effective Area (cm<sup>2</sup>) x Cylinder Stroke (cm)

$$V (\text{cm}^3) = A (\text{cm}^2) \times S (\text{cm})$$



The oil flow always chooses the line of least resistance in a hydraulic system. When using more than one hydraulic cylinder, each cylinder lifts at its own speed. When the cylinders have the same capacity, it will start moving first the cylinder at the point of the lightest load and last the cylinder at the point of the heaviest load.

To make sure that the oil flow can be controlled to operate all the cylinders uniformly to lift the load horizontally, a control valve or a split-flow pump must be used.

### CYLINDER PISTON EXTENDING SPEED

$$\text{Piston Speed } v (\text{mm/s}) = \frac{\text{Pump Oil Flow (cm}^3/\text{min)} \times 10}{\text{Cylinder Effective Area (cm}^2) \times 60}$$





# INFORMATION

## UNIT CONVERTER

LENGTH	
1 mm	= 0,039 in
1 cm	= 0,393 in
1 m	= 3,28 ft
1 in	= 25,4 mm
1 in	= 0,083 ft
1 ft	= 4 in
1 ft	= 0,305 m

MASS	
1 kg	= 2,205 lb
1 kg	= 35,27 oz
1 ton (metric)	= 1000 kg
1 ton (metric)	= 2205 lb
1 ton (metric)	= 1,1 ton (short)
1 lb	= 0,453 kg
1 ton (short)	= 907,18 kg
1 ton (short)	= 0,907 t
1 ton (short)	= 2000 lb

FORCE	
1 kg	= 9,8 N
1 N	= 0,1019 kg
1 N	= 0,225 lb
1 kN	= 0,1019 t
1 kN	= 224,8 lb
1 lb	= 4,448 N

AREA	
1 cm <sup>2</sup>	= 0,155 in <sup>2</sup>
1 m <sup>2</sup>	= 10,76 ft <sup>2</sup>
1 in <sup>2</sup>	= 6,45 cm <sup>2</sup>
1 in <sup>2</sup>	= 645 mm <sup>2</sup>

PRESSURE	
1 bar	= 0,1 MPa
1 bar	= 10 N/cm <sup>2</sup>
1 bar	= 1,0197 kg/cm <sup>2</sup>
1 bar	= 14.5 psi
1 Pa	= 1 N/m <sup>2</sup>
1 kPa	= 0,145 psi
1 MPa	= 10 bar
1 N/cm <sup>2</sup>	= 0,1 bar
1 kg/cm <sup>2</sup>	= 0,98 bar
1 psi	= 0,069 bar
1 psi	= 1 lb/in <sup>2</sup>

POWER	
1 kW	= 1.359 hp
1 hp	= 0,735 kW
1 w	= 1 J/s

TEMPERATURE	
(°C x 1,8) + 32	= °F
(°F - 32) / 1,8	= °C

VOLUME	
1 cm <sup>3</sup>	= 0,061 in <sup>3</sup>
1 m <sup>3</sup>	= 1000 l
1 m <sup>3</sup>	= 1,3 yard <sup>3</sup>
1 ml	= 1 cm <sup>3</sup>
1 ml	= 0,035 oz-liq
1 l	= 1000 cm <sup>3</sup>
1 l	= 0,264 gal (US)
1 l	= 0,219 gal (UK)
1 l	= 61,023 in <sup>3</sup>
1 l	= 0,035 ft <sup>3</sup>
1 l	= 1,056 quart
1 in <sup>3</sup>	= 16,387 cm <sup>3</sup>
1 in <sup>3</sup>	= 0,016 l
1 in <sup>3</sup>	= 0,576 oz-liq
1 in <sup>3</sup>	= 0,017 quart
1 gal (UK)	= 4,546 l
1 gal (US)	= 3,785 l
1 gal (US)	= 3785 cm <sup>3</sup>
1 gal (US)	= 231 in <sup>3</sup>
1 gal (US)	= 0,133 ft <sup>3</sup>
1 quart	= 0,946 l

FLOW	
1 l/min	= 1000 cm <sup>3</sup> /min
1 l/min	= 0,264 gal/min (US)
1 l/min	= 0,22 gal/min (UK)
1 cm <sup>3</sup> /min	= 0,61 in <sup>3</sup> /min
1 in <sup>3</sup> /min	= 16,4 cm <sup>3</sup> /min
1 gal/min (US)	= 3,785 l/min

Visit our website [www.larzep.com](http://www.larzep.com) and use the unit converter application.

• **Australia**

**Actuant Australia Pty Ltd.**

3 Orion Road, Jandakot, WA, 6164 | Australia  
T: +61 (08) 9414 0100  
Australia@larzep.com

• **India**

**Enerpac India Private Limited**

No. 10, Bellary Road, Sadashivnagar,  
Bangalore, Karnataka-560080  
T: +91 80 6952 9000  
India@larzep.com

• **Japan**

**Enerpac Co., Ltd.**

Besshocho 85-7  
Kita-ku, Saitama-shi 331-0821, Japan  
T: +81 48 662 4911  
Japan@larzep.com

• **South East Asia**

**Actuant Asia Pte Ltd.**

25 Pandan Crescent, #05-11/12/13 Tic Tech Center  
Singapore 128477  
T: +65 68 63 0611  
SEA@larzep.com

• **South Korea**

**Actuant Korea Ltd.**

48, Mayu-ro 20beon-gil  
Siheung-si, Gyeonggi-do 15116, South Korea  
T: +82-31-434-4506  
Korea@larzep.com



Enerpac reserves all rights of total or partial modification of its models and features without prior notice.

**ENERPAC Spain, S.L.**

Avenida Urutiaga, 6 | 48269 Mallabia, Spain | Tel: (+34) 943 171200 | Fax: (+34) 943 174166 | E-mail: info@larzep.com

**Performance under Pressure**

**www.larzep.com**