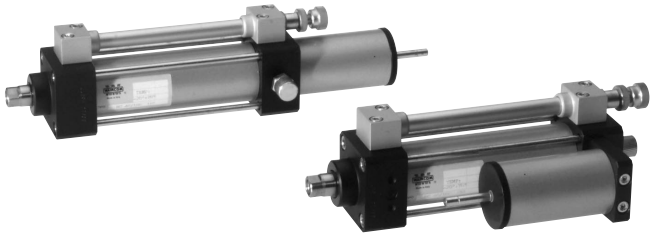
DESCRIPTION

Hydraulic regulators series "HC" assure a constant speed of pneumatic cylinders during their working cycle. In fact in the control of tools, that during their movements meet different resistances (i.e. violent impacts and vibrations) with the consequent variation of speed due to the use of only pneumatic control, you could obtain coarse finishes of the tooling till reach the breaking of the same tool. The hydraulic speed regulators exploit the oil incompressibility that, passing from a chamber to another one through an externally adjustable flow regulator, manages to uniform the speed and, with the use of control valves, avoids dead times warranting perfectly repeatable stops independently from the applied load. The adjustment can be made during the piston rod thrust phase, retract phase or both.

The stop valve (STOP), mounted in-line on the circuit, and the acceleration valves (SKIP), mounted in-parallel, can be inserted in both the phases. These are poppet valves, two port, pneumatically actuated and therefore they have to be operated to make the STOP valve insert and to cut out the SKIP one.



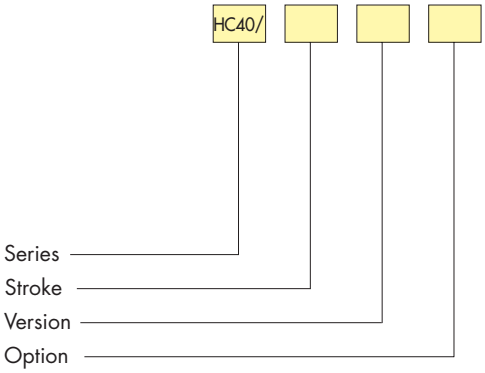
TECHNICAL DATA

Working temperature	0 ÷ +70 °C (-20 °C with dry air)
Medium	Hydraulic oil (WAIRSOL HC40: contact our technical office for details)
Versions	In-line tank, piston rod thrust adjustment; In-parallel tank, piston rod thrust adjustment; In-parallel tank, piston rod retract adjustment; In-parallel tank, double adjustment
Bore	Ø 40
Standard strokes (mm)	50, 100, 150, 200, 250, 300, 350, 400
Maximum stroke (mm)	1000
Maximum adjustable load	Without valves: 6000 N With valves: 5000 N
Minimum/Maximum permissible speed (mm/min)	Without valves: 10 ÷ 10.000 With valves: 0 ÷ 6.000

MATERIALS

End caps	Anodized aluminium alloy
Cylinder barrel	Drawn steel
Piston rod	C45 chromium-plated steel
Piston rod bearing	Bronze and PTFE, self-lubricating
Piston	Anodized aluminium alloy
Seals	NBR rubber
Tube for oil passage	Anodized aluminium alloy
Oil level stick	Steel

ORDER KEY



VERSIONS

- **LU** In-line tank, piston rod thrust adjustment
- **PU** In-parallel tank, piston rod thrust adjustment
- **PR** In-parallel tank, piston rod retract adjustment
- **PD** In-parallel tank, double adjustment

OPTIONS

- **1** Standard adjustment
- **2** STOP valve adjustment
- **3** SKIP valve adjustment
- **4** SKIP and STOP valves adjustment

ORDER EXAMPLES

Hydraulic regulator HC 40, 100 mm stroke, in-parallel tank, stop valve thrust adjustment HC 40/100 PU2

Hydraulic regulator HC 40, 150 mm stroke, in-parallel tank, skip valve double adjustment + cylinder series "CPUI" Ø63, 150 mm stroke, magnetic piston type + fixing plate + connection bridle + nipple + threaded bar, ASSEMBLED:

HC40/150 PD3, 63/150 CPUI/M,
HC 40/PT 63, HC 40/BR 50/63,
HC 40/NP 50/63, HC 40/BF Ø
M/HC40

ASSEMBLY

"HC40" ..... + cylinder series "CPUI"	M/HC40

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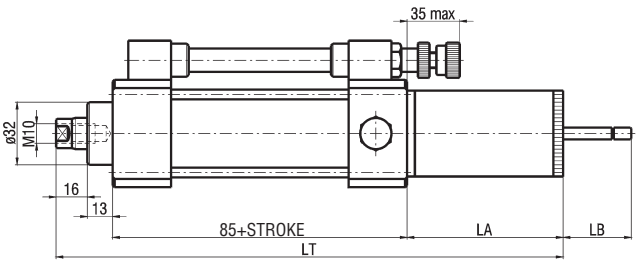
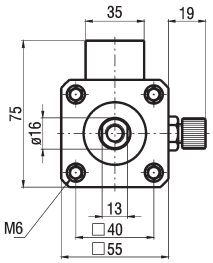
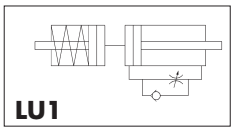
IN-LINE TANK-THRUST ADJUSTMENT - HC40/..LU1

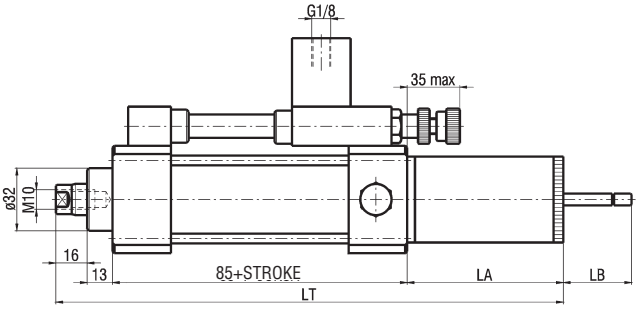


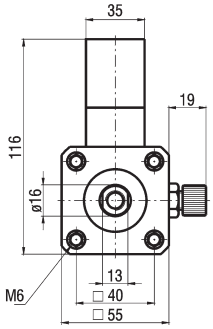


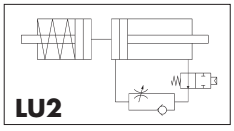


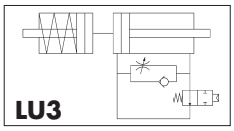
WEIGHT: 1300 g (0-STROKE) + 300 g/50 mm OF STROKE

IN-LINE TANK-THRUST ADJUSTMENT - HC40/..LU2 - HC40/..LU3



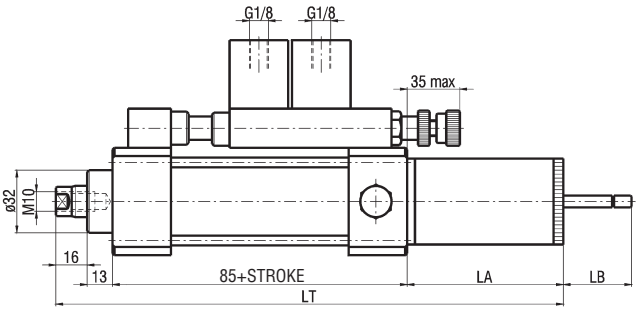


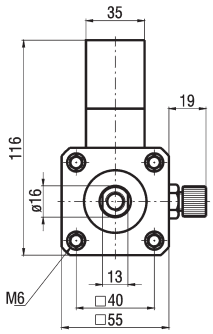


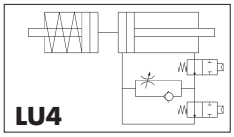


WEIGHT: 1500 g (0-STROKE) + 270 g/50 mm OF STROKE

IN-LINE TANK-THRUST ADJUSTMENT - HC40/..LU4





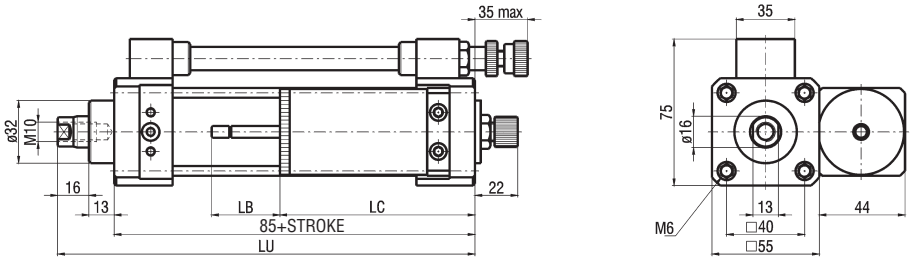


WEIGHT: 1600 g (0-STROKE) + 270 g/50 mm OF STROKE

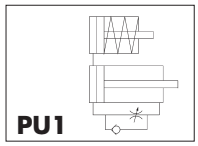
DIMENSIONS WITH IN-LINE TANK-THRUST ADJUSTMENT

	STROKE *(mm)*							
	50	100	150	200	250	300	350	400
LA	80	80	100	100	125	125	145	145
LB	35	35	50	50	70	70	90	90
LT	244	294	364	414	489	539	609	659

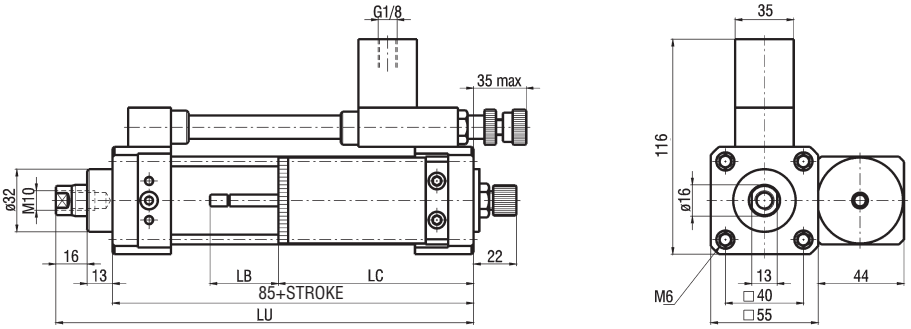
IN-PARALLEL TANK-THRUST ADJUSTMENT - HC40/..PU1



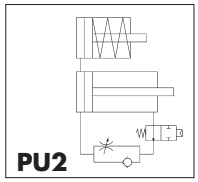
WEIGHT: 1300 g (0-STROKE) + 300 g/50 mm OF STROKE

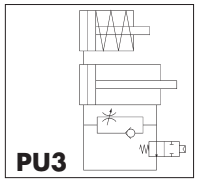


IN-PARALLEL TANK-THRUST ADJUSTMENT - HC40/..PU2 - HC40/..PU3

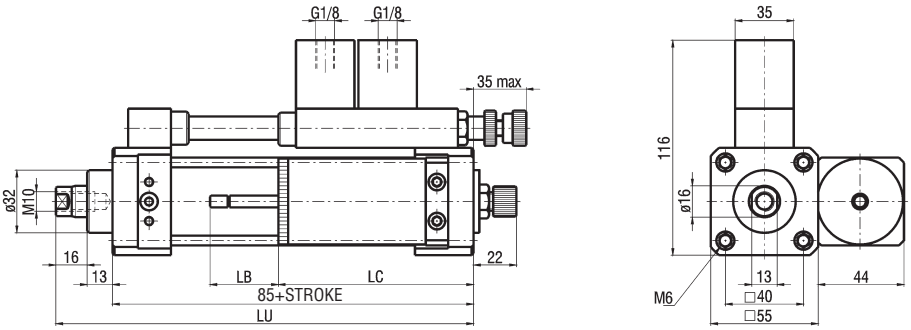


WEIGHT: 1500 g (0-STROKE) + 300 g/50 mm OF STROKE

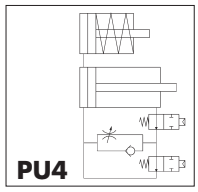




IN-PARALLEL TANK-THRUST ADJUSTMENT - HC40/..PU4



WEIGHT: 1600 g (0-STROKE) + 300 g/50 mm OF STROKE



DIMENSIONS WITH IN-PARALLEL TANK-THRUST ADJUSTMENT

	STROKE *(mm)*							
	50	100	150	200	250	300	350	400
LB	35	35	50	50	70	70	90	90
LC	100	100	120	120	145	145	165	165
LU	164	214	264	314	364	414	464	514

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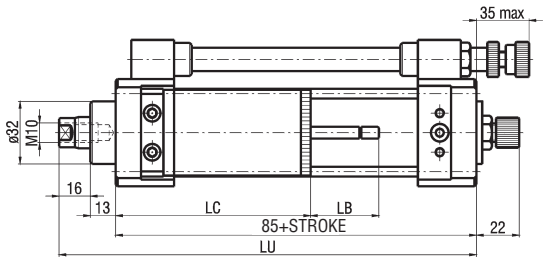
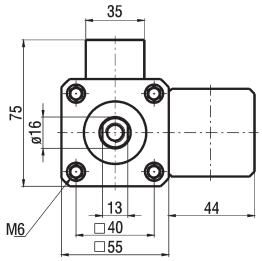
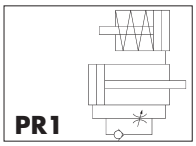
IN-PARALLEL TANK-RETRACT ADJUSTMENT - HC40/..PR1

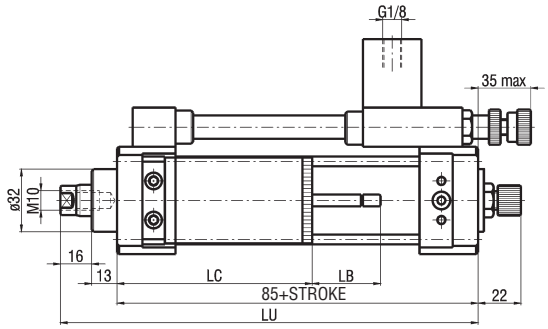


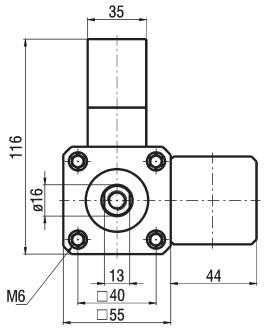


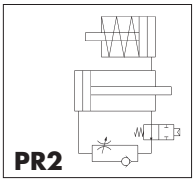


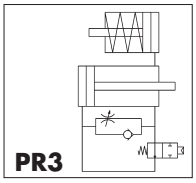
WEIGHT: 1300 g (0-STROKE) + 300 g/50 mm OF STROKE

IN-PARALLEL TANK-RETRACT ADJUSTMENT - HC40/..PR2 - HC40/..PR3



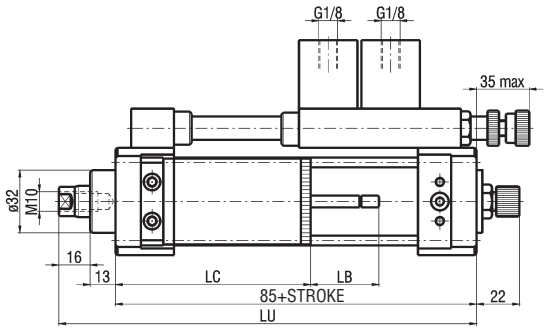


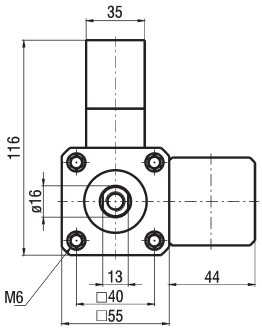


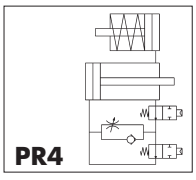


WEIGHT: 1500 g (0-STROKE) + 300 g/50 mm OF STROKE

IN-PARALLEL TANK-RETRACT ADJUSTMENT - HC40/..PR4





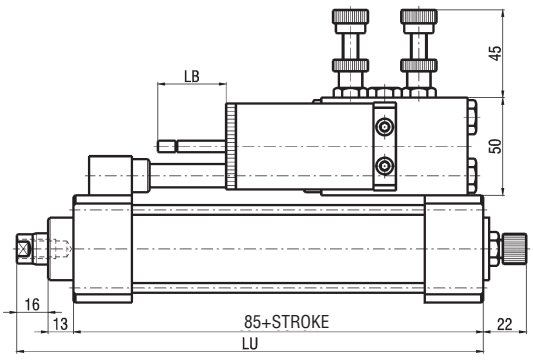


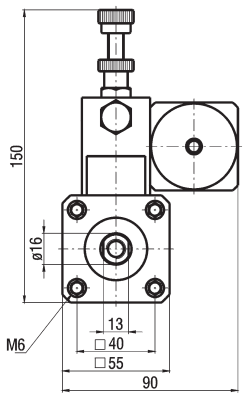
WEIGHT: 1600 g (0-STROKE) + 300 g/50 mm OF STROKE

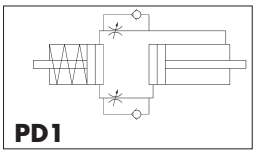
DIMENSIONS WITH IN-PARALLEL TANK-RETRACT ADJUSTMENT

	STROKE *(mm)*							
	50	100	150	200	250	300	350	400
LB	35	35	50	50	70	70	90	90
LC	100	100	120	120	145	145	165	165
LU	164	214	264	314	364	414	464	514

IN-PARALLEL TANK-DOUBLE ADJUSTMENT - HC40/..PD1

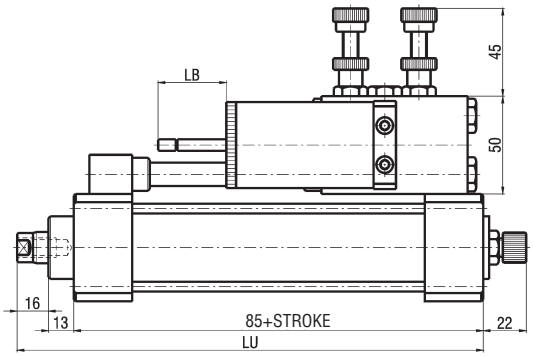


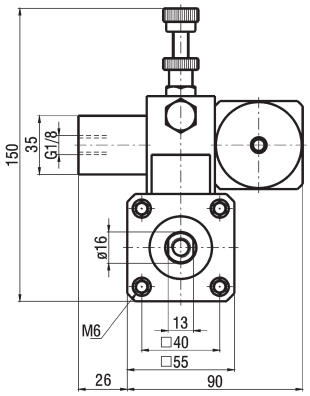


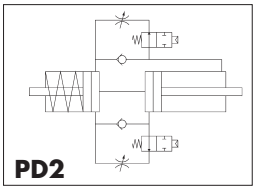


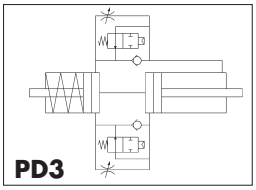
WEIGHT: 1700 g (0-STROKE) + 300 g/50 mm OF STROKE

IN-PARALLEL TANK-DOUBLE ADJUSTMENT - HC40/..PD2 - HC40/..PD3







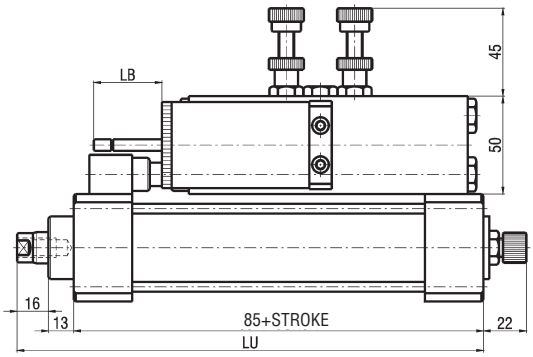


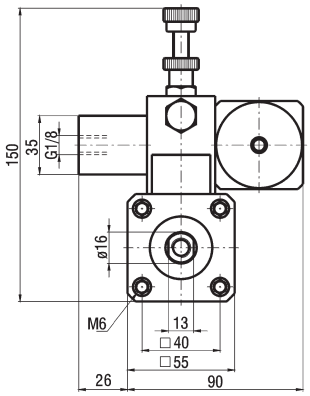
WEIGHT: 1850 g (0-STROKE) + 300 g/50 mm OF STROKE

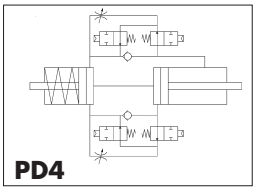
DIMENSIONS WITH IN-PARALLEL TANK-DOUBLE ADJUSTMENT

	STROKE *(mm)*							
	50	100	150	200	250	300	350	400
LB	35	35	50	50	70	70	90	90
LU	164	214	264	314	364	414	464	514

IN-PARALLEL TANK-DOUBLE ADJUSTMENT - HC40/..PD4







WEIGHT: 2000 g (0-STROKE) + 300 g/50 mm OF STROKE

DIMENSIONS WITH IN-PARALLEL TANK-DOUBLE ADJUSTMENT

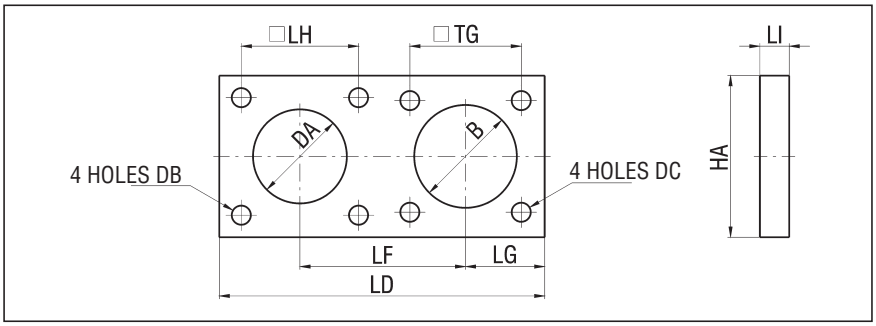
	STROKE *(mm)*					
	150	200	250	300	350	400
LB	50	50	70	70	90	90
LU	264	314	364	414	464	514

P.S.: FOR STROKES LOWER THAN 150 mm THE HYDRAULIC REGULATOR CAN NOT BE SUPPLIED, BEING THE BODY VALVE BIGGER THAN THE STROKES

FIXING PLATE HYDRAULIC REGULATOR/CYLINDER SERIES "CPUI" - HC40/PT Ø

Ø	B	DA	DB	DC	HA	LD	LF
40	35	32	6,5	6,5	55	111	56,5
50	40	32	6,5	8,5	65	122	62
63	45	32	6,5	8,5	75	132	67
80	45	32	6,5	10,5	95	152	77
100	55	32	6,5	10,5	115	171	86,5

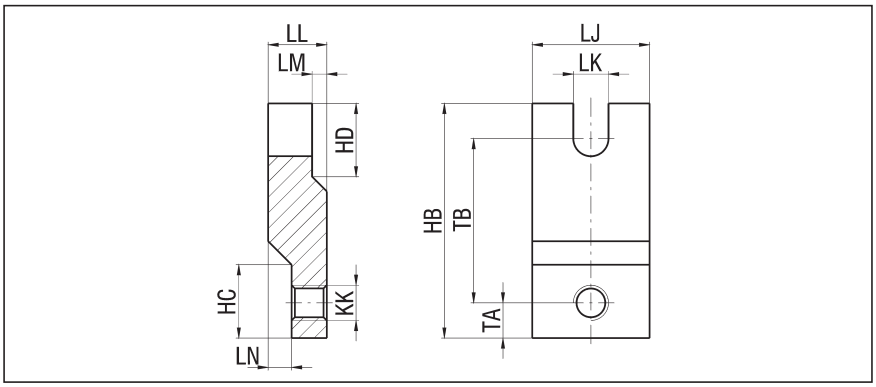
Ø	LG	LH	LI	TG	WEIGHT *(g)*
40	27	40	10	38	315
50	32,5	40	10	46,5	430
63	37,5	40	12	56,5	666
80	47,5	40	12	72	1080
100	57	40	15	89	1879



CONNECTION BRIDLE HYDRAULIC REGULATOR/CYLINDER SERIES "CPUI" PISTON ROD - HC40/BR Ø

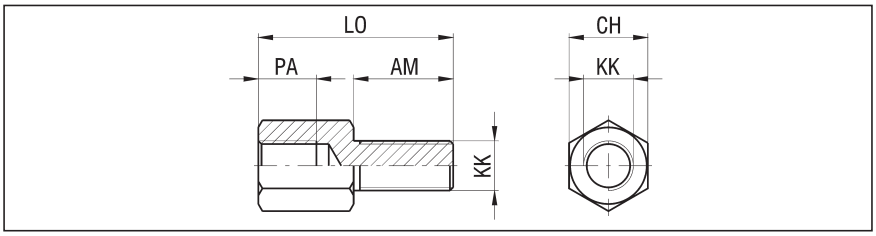
Ø	HB	HC	HD	KK	LJ	LK	LL
40	80	25	25	M12x1,25	40	12	20
50 - 63	90	-	-	M16x1,5	40	12	15
80-100	117	-	-	M20x1,5	50	12	20

Ø	LN	LM	TA	TB	WEIGHT *(g)*
40	8	5	12	56	351
50 - 63	-	-	11,5	62	369
80-100	-	-	18	77	818



CYLINDER SERIES "CPUI" RESTORATION THREAD NIPPLE - HC40/NP Ø

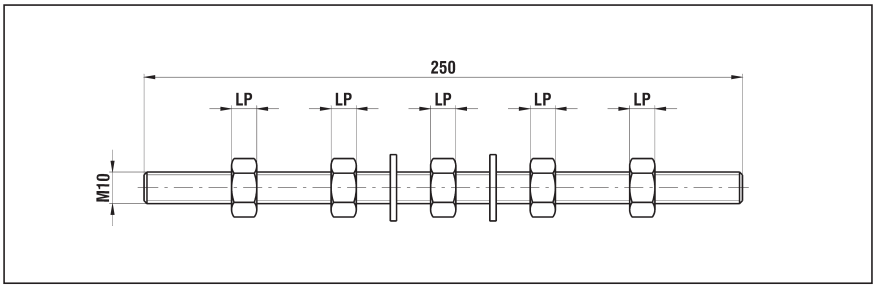
Ø	AM	CH	KK	LO	PA	WEIGHT *(g)*
40	24	19	M12x1,25	47	14	59
50 - 63	32	24	M16x1,5	65	19	131
80-100	40	30	M20x1,5	78	24	245



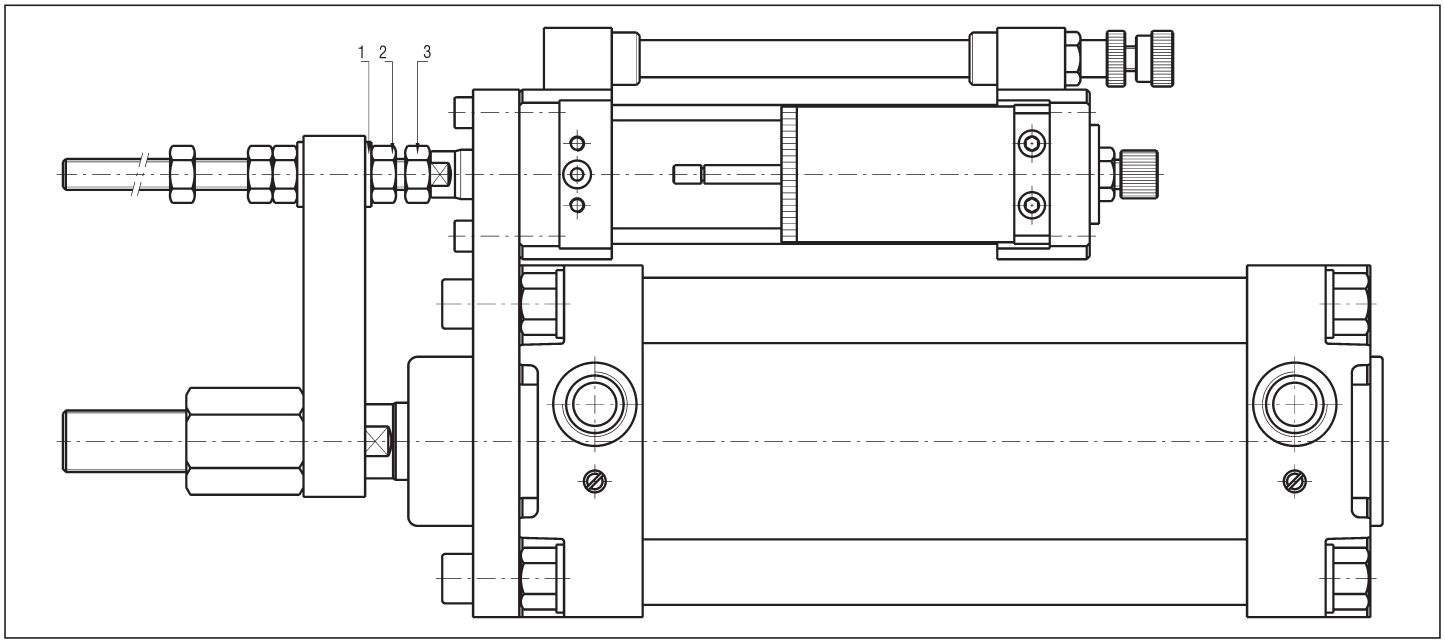
THREADED BAR - HC40/BF Ø

Ø	LP	WEIGHT *(g)*
40	6	166
50 - 100	8	178

P.S.: THREADED BAR IS SUPPLIED WITH 5 NUTS AND 2 WASHERS



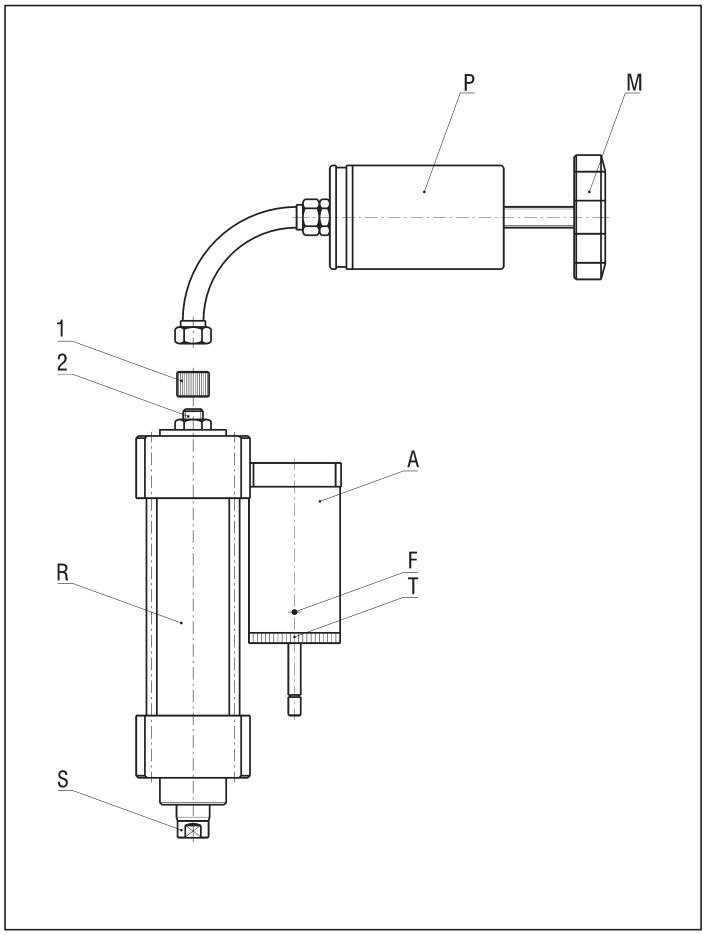
FIXING PLATE HYDRAULIC REGULATOR/CYLINDER SERIES "CPUI"



Ø	1	2	3
40 ÷ 63	-	X	-
80	-	X	X
100	X	X	X

P.S.: Do not tighten the bridle – threaded coupling.

PUMP FOR OIL FILLING



MAINTENANCE OPERATIONS

A HYDRAULIC SPEED REGULATOR IS BASICALLY A CLOSED CIRCUIT SYSTEM AND IT IS SOMETIMES SUBJECT TO LITTLE OIL BLOW-BY THAT COULD PROVOKE AN UNCORRECT WORKING OF THE SAME CIRCUIT. SO IT'S ADVISABLE TO PAY ATTENTION TO THE OIL LEVEL THAT SHOULD NEVER GO DOWN BELOW THE MINIMUM INDICATED BY THE POSITION OF THE NOTCH SITUATED ON THE DIP-STICK IN THE SUPPLEMENTARY TANK. IF THIS OCCUR, THE REGULATOR MUST BE REFILLED AS SOON AS POSSIBLE.

RECHARGE INSTRUCTIONS

IT IS ADVISABLE TO KEEP THE HYDRAULIC REGULATOR IN VERTICAL POSITION IN ORDER TO CARRY OUT THE RECHARGE OR THE TOPPING UP OPERATIONS.

1. TAKE AWAY THE PLUG No. 1 FROM THE FILLING VALVE No. 2.
2. UNSCREW PARTIALLY THE PLUG "T" (ABOUT 5 mm).
3. CONNECT THE PUMP "P" TO THE FILLING VALVE No. 2, TURN KNOB "M" AND FILL UP THE REGULATOR "R" WITH OIL TILL IT COMES OUT FROM THE HOLE "F" SITUATED ON TANK "A".
4. TAKE OUT COMPLETELY THE PISTON ROD "S".
5. SEPARATE THE PUMP "P" FROM THE FILLING VALVE No. 2 AND ALTERNATE THRUST AND RETRACT NORMAL MOVEMENTS OF THE PISTON ROD SO THAT THE AIR CAN BLEED THROUGH THE CHECK VALVE No. 2. ACT ON THE BALL OF THE CHECK VALVE No. 2 WITH THE HELP OF A SMALL POINT IN ORDER TO FACILITATE THE AIR OUTLET.
6. RETRACT COMPLETELY THE PISTON ROD "S" BEFORE RE-CONNECTING PUMP "P" AND THEN POINTS 3,4,5, SHOULD BE REPEATED TILL ONLY OIL (NO MORE AIR) WILL COME OUT FROM THE FILLING VALVE No. 2.
7. RETIGHTEN FINALLY PLUGS No. 1 AND "T"