









FOOT PEDAL

The wide range of foot controls, available in a variety of configurations, allows the best choice of product to be made in both functional and dimensional terms. The different models offer several solutions when it comes to hydraulic connection layout – always guaranteeing simple, straightforward installation. The new RCS and RCT series also include different foot control types, with special care applied to their ergonomic and design features.

QUICK REFERENCE GUIDE

Type	Description	Number of ports	Inlet pressure (bar)	Oil input capacity (l/min)	Weight (kg)	Standard threads
RCP	 Foot pedal 2 service ports with side ports and reduced body height	2	100	12	3,4	G 1/4 9/16"18 UNF
RCF	 Foot pedal lower ports	2	100	12	4,1	G 1/4 9/16"18 UNF
RCD	 Double foot pedal lower ports	2	60	12	3,2	G 1/4 9/16"18 UNF
RCS	 Foot pedal lower ports	2	100	12	4,1	G 1/4 9/16"18 UNF
RCT	 Double foot pedal lower ports	4	100	12	5,1	G 1/4 9/16"18 UNF
RCV	 Hydraulic remote control one service port	1	100	12	1	G 1/4 9/16"18 UNF



GENERAL SPECIFICATION

Description	Value
Maximum input pressure	100 bar - 1450 PSI
Maximum back pressure on tank line	3 bar - 43,5 PSI
Maximum flow on ports	12 l/min - 3 GPM
Hysteresis	< 1 bar - < 14,5 PSI
Hydraulic fluid	Mineral oil HL, HM (o HLP DIN 51524)
Fluid temperature range	-20°C / +80°C
Fluid viscosity range	10 ÷ 300 cSt
Max contamination level	9 (NAS 1638) - 20/18/15 (ISO 4406:1999)
Recommended filtration	β10 > 75 (ISO 16889:2008)
Leakage (singol port)	3 cc/min (with 50 bar of pressure)
Body material	Cast iron
Surface coating	Zin plated (international standards 2000/53/CE RoHS)
Plunger material	Stainless steel
Plunger guide material	Brass

OPERATING PRINCIPLE

Hydraulic remote controls and foot pedals works according to the principle of direct-acting pressure reducing valves. In rest position, the Joystick lever or kit pedal is held in neutral by return spring; inlet port P is closed and ports are connected to tank port T. By selecting control lever, plunger compresses return spring and reaction spring through cam mechanism; consequently it shifts spool and opens connection holes between inlet port P and service ports. This causes a pressure increase on service ports that is proportional to the control lever stroke and the reaction spring.



RCP FOOT PEDAL 2 SERVICE PORTS WITH SIDE PORTS AND REDUCED BODY HEIGHT

Hydraulic remote control RCP belongs to the wide range of Hydrocontrol S.p.A. This Pedal is characterized by reduced overall dimensions and several configurations. RCP works according to the principle of direct-acting pressure reducing valves. In rest position, the foot pedal is held in neutral by return spring; inlet port P is closed and ports are connected to tank port T.



TECHNICAL SPECIFICATIONS

Max pressure: **100 bar**

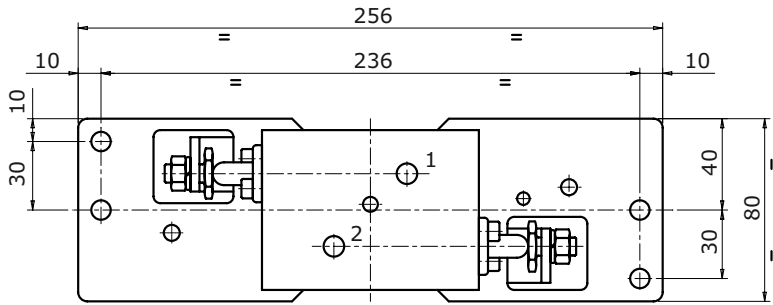
Oil capacity: **12 l/min**

Weight: **3,4 Kg**

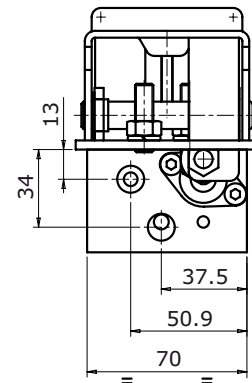
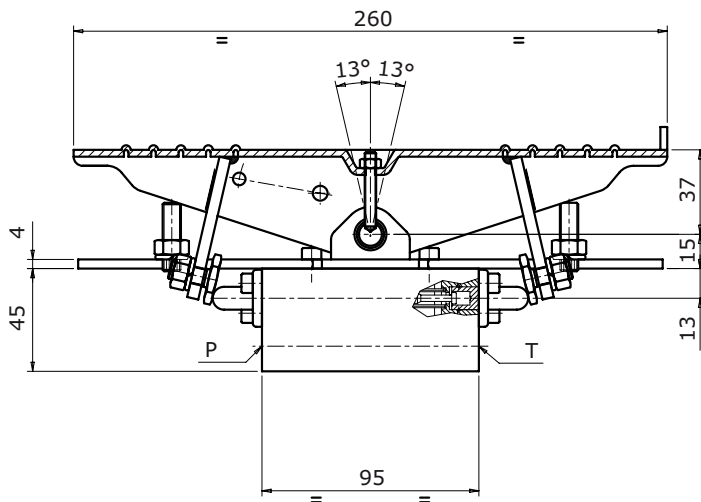
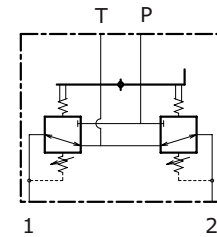
APPLICATIONS

Mini-excavators

DIMENSIONS



HYDRAULIC SCHEMA





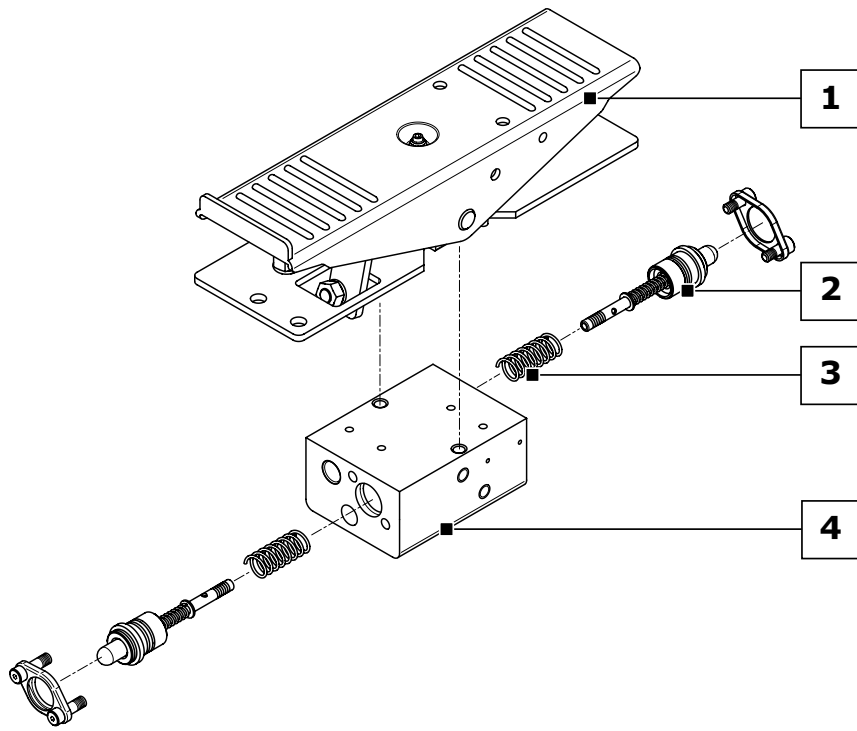
FOOT PEDAL 2 SERVICE PORTS WITH SIDE PORTS AND REDUCED BODY HEIGHT

RCP

ORDER EXAMPLE = RCP: 01S - A01 - MA - RA G02

- RCP product type _____
- 1 CONTROL CLASSIFICATION:** _____
- 01S** control type _____
- 2 METERING CURVE:** _____
- A01** curve type _____
- 3 RETURN SPRING:** _____
- MA** return spring type _____
- 4 BODY ARRANGEMENT:** _____
- RA** body specification _____
- G02** body thread _____

Ordering row 2 and 3, must be repeated for each port
 complete sample: **RCP: 01S A01 MA A01 MA RA G02**



1	CONTROL CLASSIFICATION: (page 36)
01S	Foot pedal with return spring in neutral
02S	Foot pedal with prearranged handle and return spring in neutral
03S	Foot pedal with adjustable angle and prearranged handle and return spring in neutral
04S	Foot pedal with adjustable angle with return spring in neutral
2	METERING CURVE: (page 70)
A01	Linear metering curve with step
B01	Linear metering curve without step
C01	Broken line metering curve with step
D01	Broken line metering curve without step

3	RETURN SPRING: (page 79)
MA	Preload 25 N - End stroke load 48 N
MB	Preload 14 N - End stroke load 27 N
MC	Preload 73 N - End stroke load 135 N
MD	Preload 89 N - End stroke load 169 N
4	BODY ARRANGEMENT: (page 37)
RA G02	Standard Body (G 1/4 ports)
RA U02	Standard Body (9/16"-18 UNF ports)



RCP FOOT PEDAL 2 SERVICE PORTS WITH SIDE PORTS AND REDUCED BODY HEIGHT

CONTROL KIT CLASSIFICATION

All controls installed on the foot pedal RCP are interchangeable. The controls shown correspond to standard configurations; for different applications contact our Commercial Dept.

Code	Configuration	Schema	Description
01S			Foot pedal with return spring in neutral
02S			Foot pedal with prearranged handle and return spring in neutral
03S			Foot pedal with adjustable angle and prearranged handle and return spring in neutral
04S			Foot pedal with adjustable angle with return spring in neutral

FOOT PEDAL 2 SERVICE PORTS WITH SIDE PORTS AND REDUCED BODY HEIGHT

RCP

BODY ARRANGEMENT

The foot pedal RCP has only one setting body, the only variable is represented by a different thread.

Code	Configuration	Schema	Description
RA G02			Standard body with ports G 1/4
RA U02			Standard body with ports 9/16" - 18 UNF



RCF FOOT PEDAL LOWER PORTS

Hydraulic remote control RCF belongs to the wide range of Hydrocontrol S.p.A. This Pedal is characterized by reduced overall dimensions and several configurations. RCF works according to the principle of direct-acting pressure reducing valves. In rest position, the foot pedal is held in neutral by return spring; inlet port P is closed and ports are connected to tank port T. P, T and users ports are under the body, opposite to the pedal.



TECHNICAL SPECIFICATIONS

Max pressure: **100 bar**

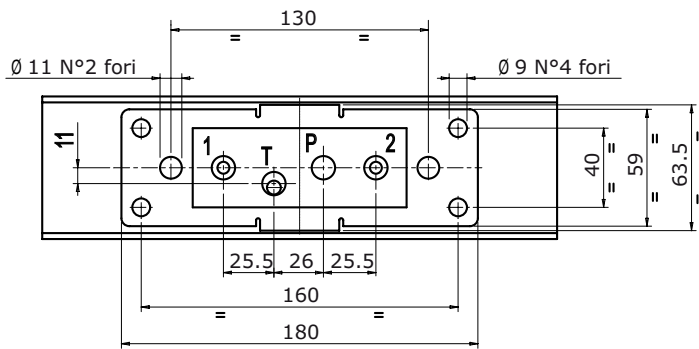
Oil capacity: **12 l/min**

Weight: **4,1 Kg**

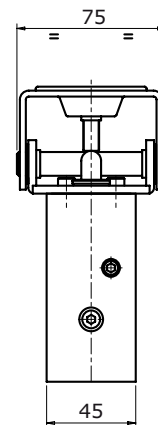
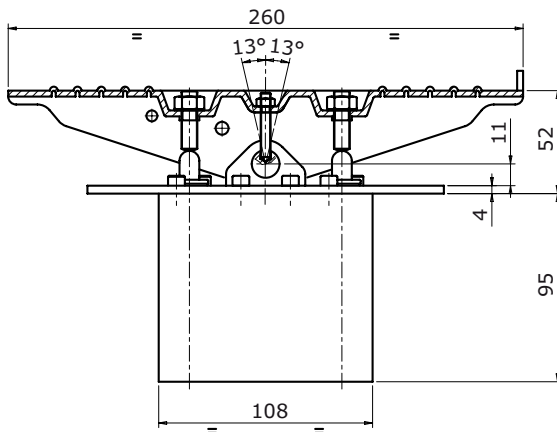
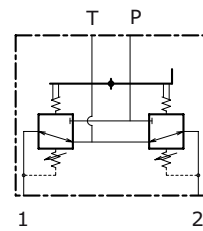
APPLICATIONS

Mini-excavators

DIMENSIONS



HYDRAULIC SCHEMA



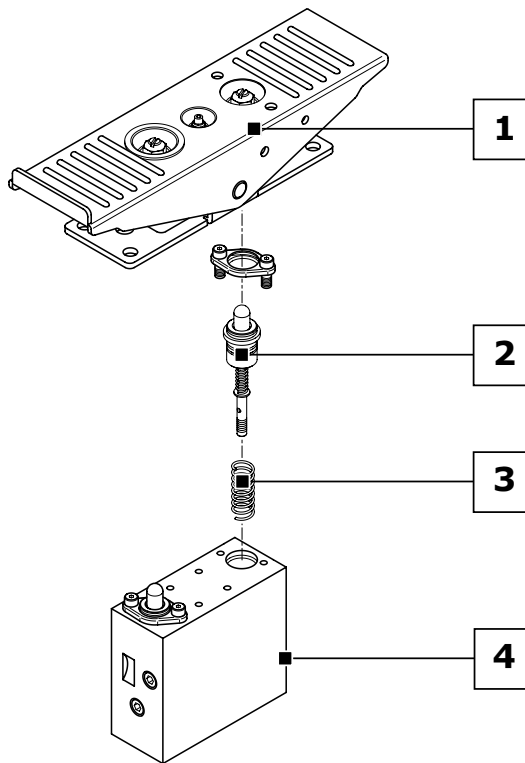


FOOT PEDAL LOWER PORTS **RCF**

ORDER EXAMPLE = RCF: 01S - A01 - MA - RA G02

- RCF product type _____
- 1 CONTROL CLASSIFICATION:** _____
- 01S** control type
- 2 METERING CURVE:** _____
- A01** curve type
- 3 RETURN SPRING:** _____
- MA** return spring type
- 4 BODY ARRANGEMENT:** _____
- RA** body specification
- G02** body thread

Ordering row 2 and 3, must be repeated for each port
 complete sample: **RCF: 01S A01 MA A01 MA RA G02**



1	CONTROL CLASSIFICATION: (page 40)
01S	Foot pedal with return spring in neutral
02S	Foot pedal with prearranged handle and return spring in neutral
03S	Foot pedal with adjustable angle and prearranged handle and return spring in neutral
04S	Foot pedal with adjustable angle with return spring in neutral
2	METERING CURVE: (page 70)
A01	Linear metering curve with step
B01	Linear metering curve without step
C01	Broken line metering curve with step
D01	Broken line metering curve without step

3	RETURN SPRING: (page 79)
MA	Preload 25 N - End stroke load 48 N
MB	Preload 14 N - End stroke load 27 N
MC	Preload 73 N - End stroke load 135 N
MD	Preload 89 N - End stroke load 169 N
4	BODY ARRANGEMENT: (page 41)
RA G02	Standard Body (G 1/4 ports)
RA U02	Standard Body (9/16"-18 UNF ports)



RCF FOOT PEDAL LOWER PORTS

CONTROL KIT CLASSIFICATION

All controls installed on the foot pedal RCF are interchangeable. The controls shown correspond to standard configurations; for different applications contact our Commercial Dept.

Code	Configuration	Schema	Description
01S			Foot pedal with return spring in neutral
02S			Foot pedal with prearranged handle and return spring in neutral
03S			Foot pedal with adjustable angle and prearranged handle and return spring in neutral
04S			Foot pedal with adjustable angle with return spring in neutral



BODY ARRANGEMENT

The foot pedal RCF has only one setting body, the only variable is represented by a different thread.

Code	Configuration	Schema	Description
RA G02			Standard body with ports G 1/4
RA U02			Standard body with ports 9/16" - 18 UNF



RCD DOUBLE FOOT PEDAL LOWER PORTS

RCD is a double pedal version remote control and belongs to the wide range of Hydrocontrol S.p.A. This pedal work according to the principle of direct-acting pressure reducing valves. In rest position, the foot pedal is held in neutral by return spring; inlet port P is closed and ports are connected to tank port T. Reduced overall dimensions and ergonomic design for a optimal control.



TECHNICAL SPECIFICATIONS

Max pressure: **60 bar**

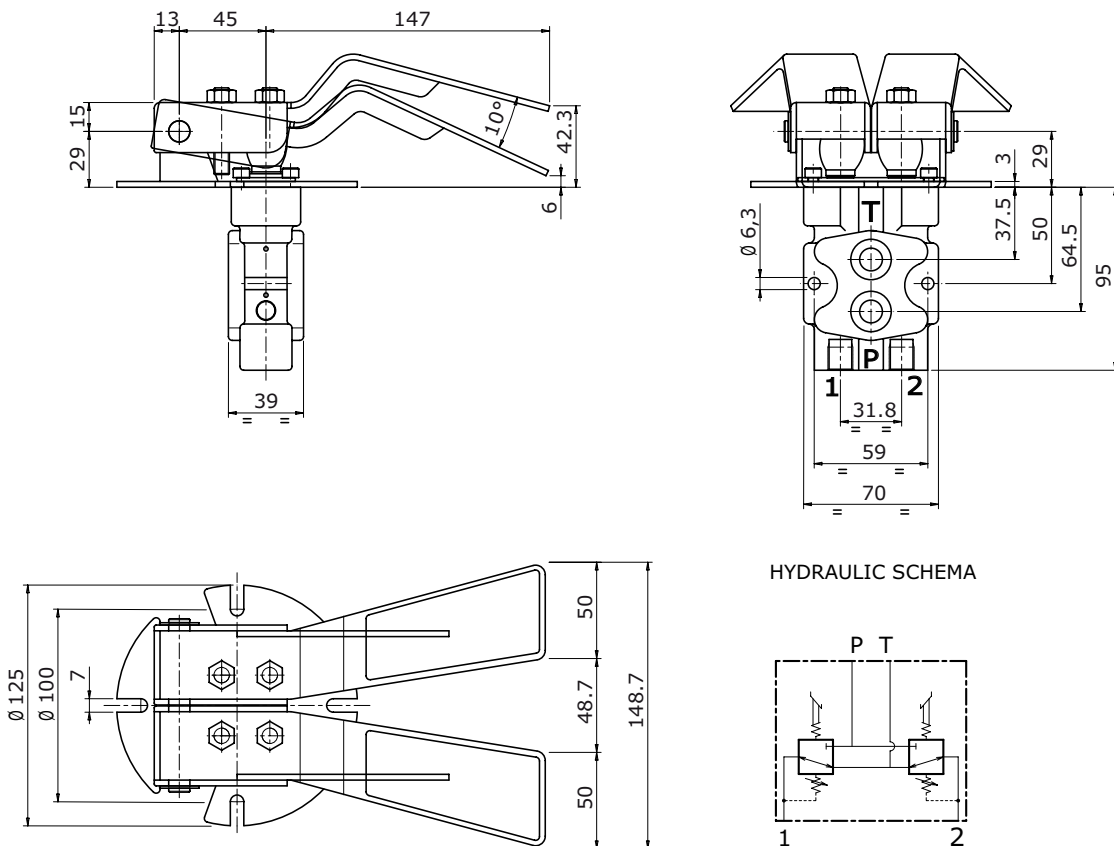
Oil capacity: **12 l/min**

Weight: **3,2 Kg**

APPLICATIONS

Mini skid loaders, Mini dumper

DIMENSIONS



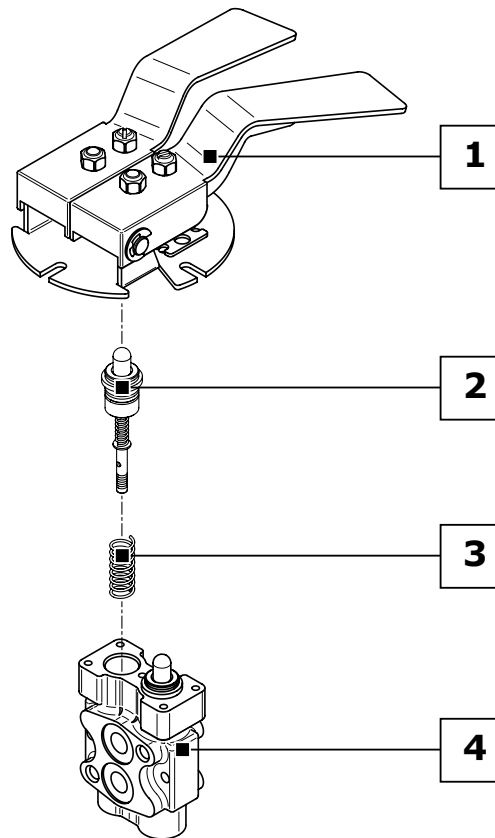


DOUBLE FOOT PEDAL LOWER PORTS **RCD**

ORDER EXAMPLE = RCD: 01S - A01 - MA - RA G02

- RCD product type _____
- 1 CONTROL CLASSIFICATION:** _____
- 01S** control type _____
- 2 METERING CURVE:** _____
- A01** curve type _____
- 3 RETURN SPRING:** _____
- MA** return spring type _____
- 4 BODY ARRANGEMENT:** _____
- RA** body specification _____
- G02** body thread _____

Ordering row 2 and 3, must be repeated for each port
 complete sample: **RCD: 01S A01 MA A01 MA RA G02**



1	CONTROL CLASSIFICATION: (page 44)
01S	Foot pedal with return spring in neutral
2	METERING CURVE: (page 70)
A01	Linear metering curve with step
B01	Linear metering curve without step
C01	Broken line metering curve with step
D01	Broken line metering curve without step

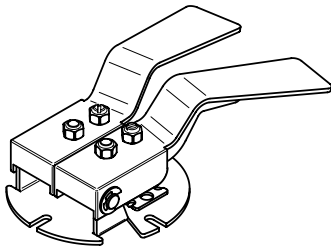
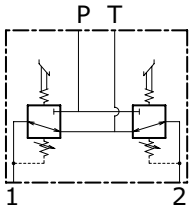
3	RETURN SPRING: (page 79)
MA	Preload 25 N - End stroke load 48 N
MB	Preload 14 N - End stroke load 27 N
MC	Preload 73 N - End stroke load 135 N
MD	Preload 89 N - End stroke load 169 N
4	BODY ARRANGEMENT: (page 45)
RA G02	Standard Body (G 1/4 ports)
RA U02	Standard Body (9/16"-18 UNF ports)



RCD DOUBLE FOOT PEDAL LOWER PORTS

CONTROL KIT CLASSIFICATION

The pedal RCD has only one configuration; for different applications refer to our Commercial Dept.

Code	Configuration	Schema	Description
01S			Foot pedal with return spring in neutral



DOUBLE FOOT PEDAL LOWER PORTS **RCD**

BODY ARRANGEMENT

The foot pedal RCD has only one setting body, the only variable is represented by a different thread.

Code	Configuration	Schema	Description
RA G02			Standard body with ports G 1/4
RA U02			Standard body with ports 9/16" - 18 UNF



RCS FOOT PEDAL LOWER PORTS

RCS is a single pedal version remote control. It's a new family completing the broad range of remote control. This pedal work according to the principle of direct-acting pressure reducing valves. In rest position, the foot pedal is held in neutral by return spring; inlet port P is closed and ports are connected to tank port T. Its ergonomic design provides optimum comfort for the operator.



TECHNICAL SPECIFICATIONS

Max pressure: **100 bar**

Oil capacity: **12 l/min**

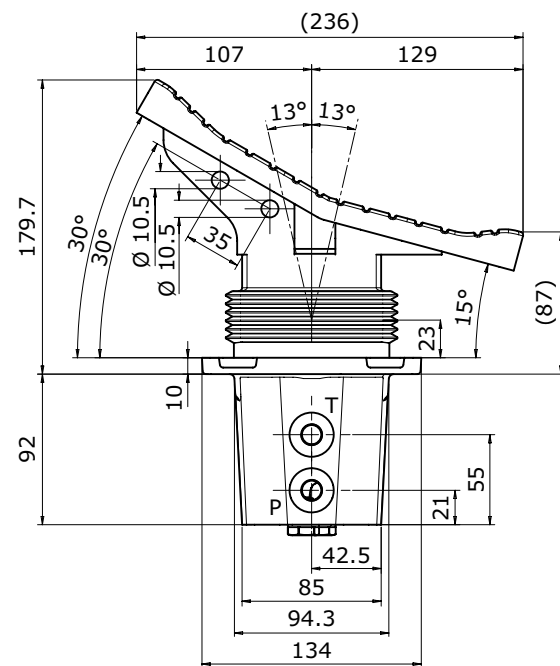
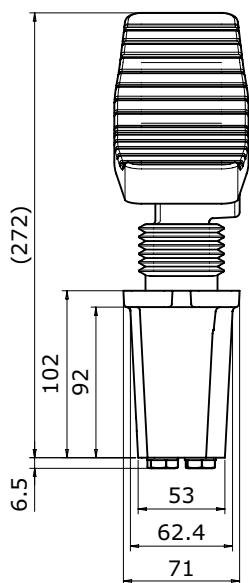
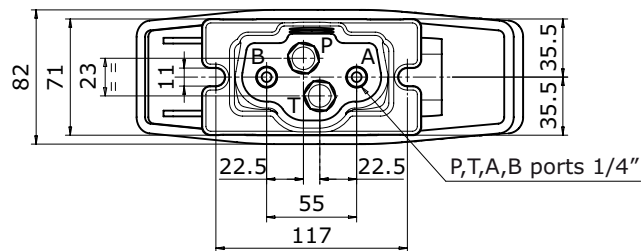
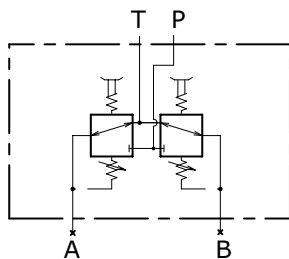
Weight: **4,1 Kg**

APPLICATIONS

Mini-excavators

RCS DIMENSIONS STANDARD

HYDRAULIC SCHEMA



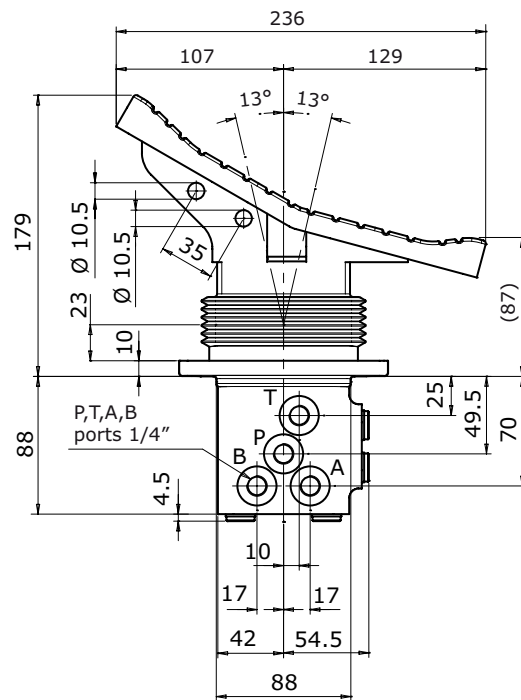
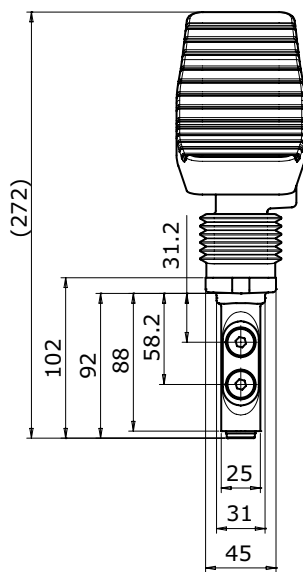
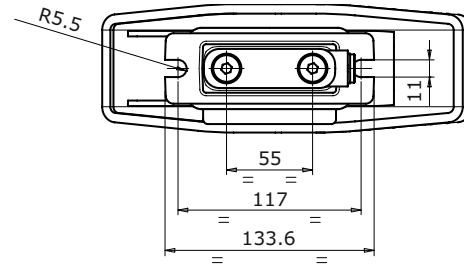
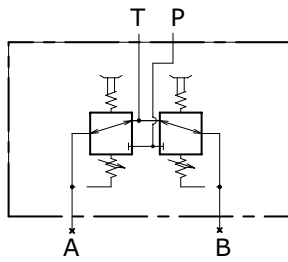


FOOT PEDAL LOWER PORTS **RCS**

RCS DIMENSIONS WITH NARROW BODY

The special design with narrow body is suitable for use on small machines.

HYDRAULIC SCHEMA



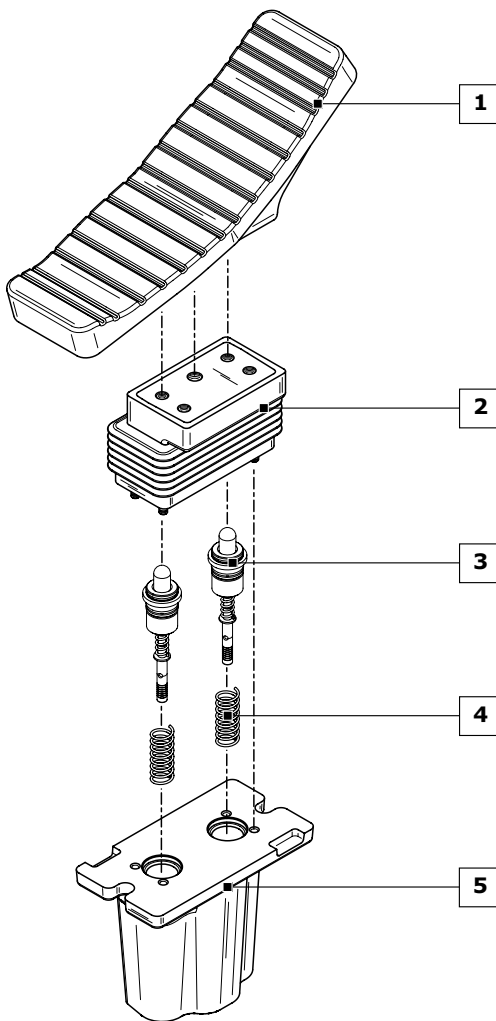


RCS FOOT PEDAL LOWER PORTS

ORDER EXAMPLE = RCS: 02P - 01S - A01T - MD - RA01 G02

- RCS product type _____
- 1 PEDAL CLASSIFICATION:** _____
 - 02P** pedal type
 - 2 CONTROL CLASSIFICATION:** _____
 - 01S** control type
 - 3 METERING CURVE:** _____
 - A01T** curve type
 - 4 RETURN SPRING:** _____
 - MA** return spring type
 - 5 BODY ARRANGEMENT:** _____
 - RA01** body specification
 - G02** body thread

Ordering row 3 and 4, must be repeated for each port
 complete sample: **RCS: 02P 01S A01T MD A01T MD RA01 G02**



1	PEDAL CLASSIFICATION: (page 49)
00P	Without pedal (prearrangement)
01P	Standard flat pedal
02P	Short pedal tilted 30°
03P	Long pedal tilted 30°
2	CONTROL KIT CLASSIFICATION: (page 49)
01S	Control kit with bellows
2	METERING CURVE: (page 74)
A01T	Linear metering curve with step (tipo A)
B01T	Linear metering curve without step (tipo B)
4	RETURN SPRING: (page 79)
MD	Preload 94 N - End stroke load 149 N
5	BODY ARRANGEMENT: (page 50)
RA01 G02	P - T lower (G 1/4 ports)
RA02 G02	P - T side (G 1/4 ports)
RA11 G02	P - T front A - B lower (G 1/4 ports)
RA12 G02	A - B - P - T side (G 1/4 ports)
RA01 U02	P - T lower (9/16-18 UNF ports)
RA02 U02	P - T side (9/16-18 UNF ports)
RA11 U02	P - T front A - B lower (9/16-18 UNF ports)
RA12 U02	A - B - P - T side (9/16-18 UNF ports)

PEDAL CLASSIFICATION

All controls installed on the foot pedal RCS are interchangeable. Pedals represented correspond to standard configurations; for different applications contact our Commercial Dept.

Code	Dimensions	Configuration	Description
00P			Without pedal (prearrangement)
01P			Standard flat pedal with rubber protection
02P			Short pedal tilted 30° with rubber protection
03P			Long pedal tilted 30° with rubber protection

CONTROL KIT CLASSIFICATION

Only one configuration is available; for different applications contact our Commercial Dept.

Code	Dimensions	Configuration	Description
01S			Control kit with bellows

Metering curves are available equipped with a swing-preventing dampening device; for more informations contact our Commercial Dept.



RCS FOOT PEDAL LOWER PORTS

STANDARD BODY ARRANGEMENT

The listed configurations are all the possible combinations that can be obtained with the RCS standard body; two different pitch threads are available. For different applications contact our Commercial Dept.

Code	Configuration	Description
RA01 G02		Standard body (ports P-T lower) with ports G 1/4
RA01 U02		Standard body (ports P-T lower) with ports 9/16" - 18 UNF
RA02 G02		Body (ports P-T side) with ports G 1/4
RA02 U02		Body (ports P-T side) with ports 9/16" - 18 UNF
RA03 G02		Body (ports A-B-P-T side) with ports G 1/4
RA03 U02		Body (ports A-B-P-T side) with ports 9/16" - 18 UNF
RA04 G02		Body (ports A-B side) (ports P-T lower) with ports G 1/4
RA04 U02		Body (ports A-B side) (ports P-T lower) with ports 9/16" - 18 UNF

FOOT PEDAL LOWER PORTS **RCS**

NARROW BODY ARRANGEMENT

The listed configurations are all the possible combinations that can be obtained with the RCS narrow body; two different pitch threads are available. For different applications contact our Commercial Dept.

Code	Configuration	Description
RA11 G02		Standard body (ports P-T front) (ports A-B lower) with ports G 1/4
RA11 U02		Standard body (ports P-T front) (ports A-B lower) with ports 9/16" - 18 UNF
RA12 G02		Body (ports A-B-P-T side) with ports G 1/4
RA12 U02		Body (ports A-B-P-T side) with ports 9/16" - 18 UNF
RA13 G02		Body (ports P-T side) (ports A-B lower) with ports G 1/4
RA13 U02		Body (ports P-T side) (ports A-B lower) with ports 9/16" - 18 UNF
RA14 G02		Body (ports P-T front) (ports A-B side) with ports G 1/4
RA14 U02		Body (ports P-T front) (ports A-B side) with ports 9/16" - 18 UNF



RCT DOUBLE FOOT PEDAL LOWER PORTS

RCT is a double pedal version remote control. It's a new family completing the broad range of remote control. Different pedal designs are available: flat, bent, extended bent for an optimal ergonomic solution. This pedal work according to the principle of direct-acting pressure reducing valves. In rest position, the foot pedal is held in neutral by return spring; inlet port P is closed and ports are connected to tank port T.



TECHNICAL SPECIFICATIONS

Max pressure: **100 bar**

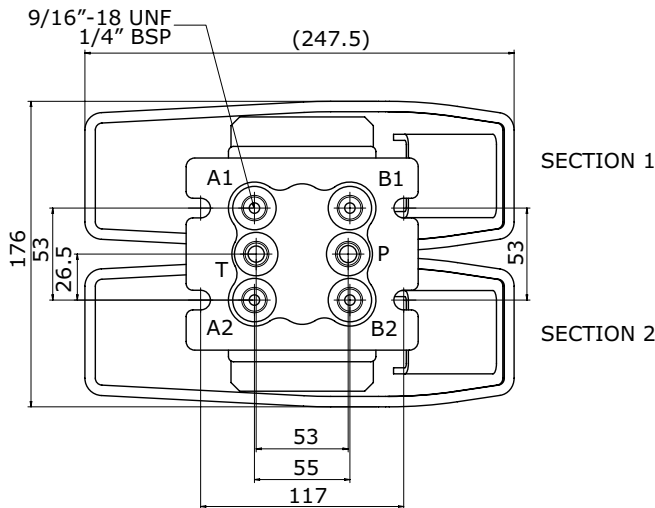
Oil capacity: **12 l/min**

Weight: **5,1 Kg**

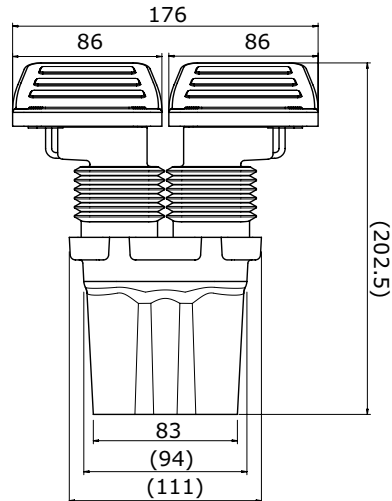
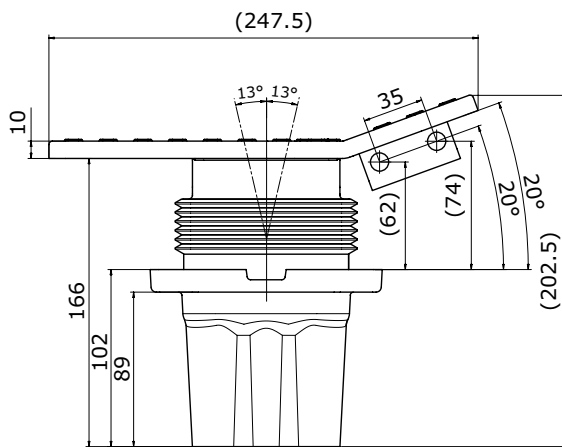
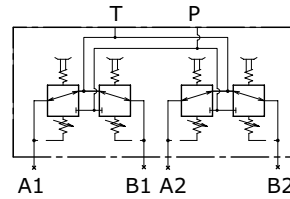
APPLICATIONS

Mini-excavators

DIMENSIONS

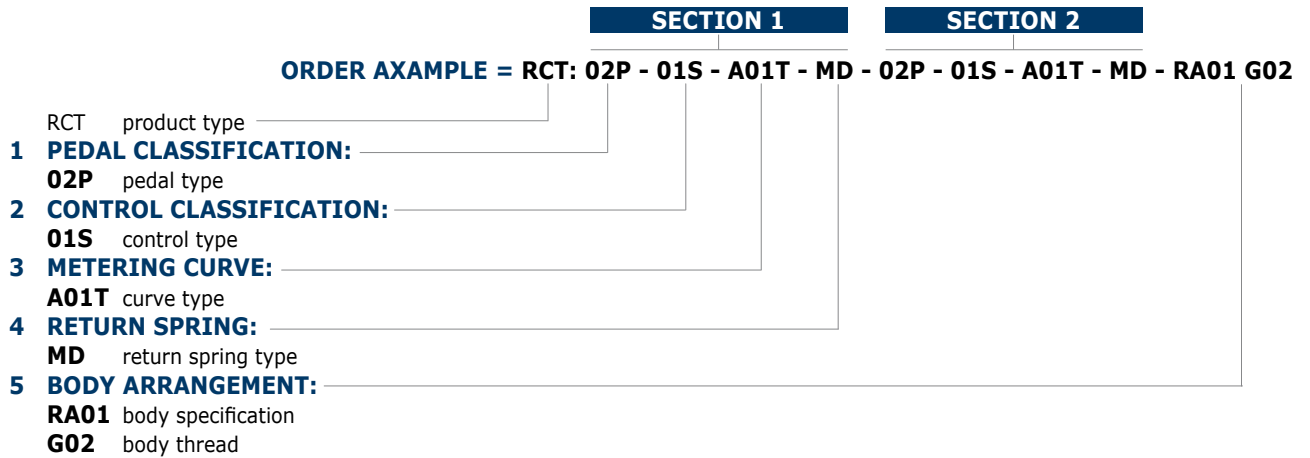


HYDRAULIC SCHEMA





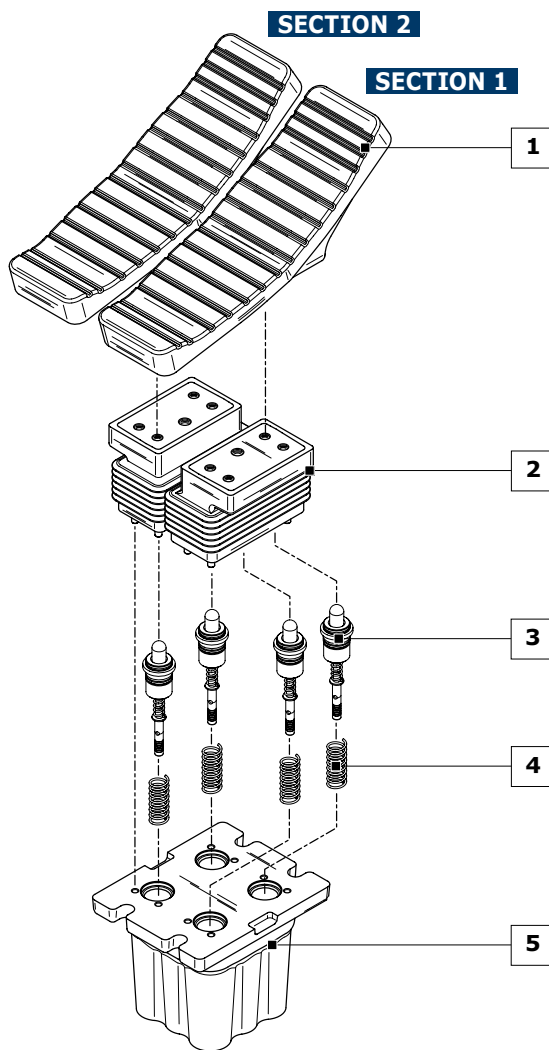
DOUBLE FOOT PEDAL LOWER PORTS **RCT**



Ordering row 1, 2, 3, and 4 must be repeated for each section. Each section contains 2 curves and 2 springs.

COMPLETE EXAMPLE

RCT: 02P 01S A01T MD A01T MD - 02P 01S A01T MD A01T MD - RA01 G02



1	PEDAL CLASSIFICATION: (page 54)
00P	Without pedal (prearrangement)
01P	Standard flat pedal
02P	Short pedal tilted 30°
03P	Long pedal tilted 30°
2	CONTROL KIT CLASSIFICATION: (page 55)
01S	Control kit with bellows
2	METERING CURVE: (page 74)
A01T	Linear metering curve with step (tipo A)
B01T	Linear metering curve without step (tipo B)
4	RETURN SPRING: (page 79)
MD	Preload 94 N - End stroke load 149 N
5	BODY ARRANGEMENT: (page 56)
RA01 G02	P - T lower (G 1/4 ports)
RA02 G02	P - T side (G 1/4 ports)
RA11 G02	P - T front A - B lower (G 1/4 ports)
RA12 G02	A - B - P - T side (G 1/4 ports)
RA01 U02	P - T lower (9/16-18 UNF ports)
RA02 U02	P - T side (9/16-18 UNF ports)
RA11 U02	P - T front A - B lower (9/16-18 UNF ports)
RA12 U02	A - B - P - T side (9/16-18 UNF ports)



RCT DOUBLE FOOT PEDAL LOWER PORTS

PEDAL CLASSIFICATION

All controls installed on the foot pedal RCT are interchangeable. Pedals represented correspond to standard configurations; for different applications contact our Commercial Dept.

Code	Dimensions	Configuration	Description
00P			Without pedal (prearrangement)
01P			Standard flat pedal with rubber protection
02P			Short pedal tilted 30° with rubber protection
03P			Long pedal tilted 30° with rubber protection



CONTROL KIT CLASSIFICATION

Only one configuration is available; for different applications contact our Commercial Dept.

Code	Dimensions	Configuration	Description
01S			Control kit with bellows

Metering curves are available equipped with a swing-preventing dampening device; for more informations contact our Commercial Dept.



RCT DOUBLE FOOT PEDAL LOWER PORTS

STANDARD BODY ARRANGEMENT

The listed configurations are all the possible combinations that can be obtained with the RCT standard body; two different pitch threads are available; for different applications contact our Commercial Dept.

Code	Configuration	Description
RA01 G02		Standard body (ports P - T lower) with ports G 1/4
RA01 U02		Standard body (ports P - T lower) with ports 9/16" - 18 UNF
RA02 G02		Body (ports P-T side) with ports G 1/4
RA02 U02		Body (ports P-T side) with ports 9/16" - 18 UNF
RA03 G02		Body (ports A-B-P-T side) with ports G 1/4
RA03 U02		Body (ports A-B-P-T side) with ports 9/16" - 18 UNF



BODY WITH SHUTTLE VALVE ARRANGEMENT

Bodies are available equipped with integrated shuttle valves to generate additional signals. The RA11 configuration includes a fifth port activated when any one of the four service ports is actuated (for safety, alert or brake release functions).

code	configuration	description
RA11 G02		Standard body with shuttle valves with ports G 1/4
RA11 U02		Standard body with shuttle valves with ports 9/16" - 18 UNF



RCV HYDRAULIC REMOTE CONTROL ONE SERVICE PORT

RCV is a general purpose single user remote control. It can be delivered with simple spring centering control, 360° regulating handle holding the control position or with pedal control. In rest position, the hydraulic remote control is held in neutral by return spring; inlet port P is closed and ports are connected to tank port T. By selecting control, plunger compresses return spring and reaction spring; consequently it shifts spool and opens connection holes between inlet port P and service ports. This causes a pressure increase on service ports that is proportional to the control stroke and the reaction spring.



TECHNICAL SPECIFICATIONS

Max pressure: **100 bar**

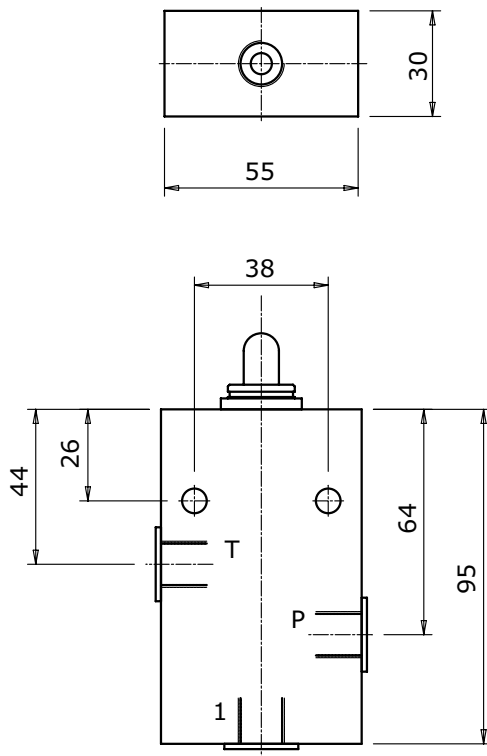
Oil capacity: **12 l/min**

Weight: **1 Kg**

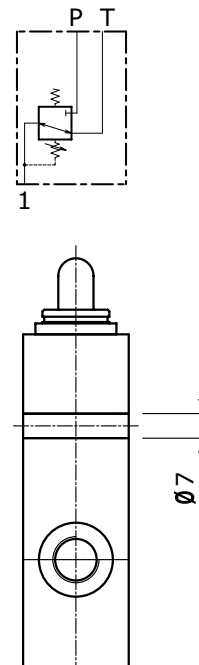
APPLICATIONS

Forklifts, Tractors

DIMENSIONS



HYDRAULIC SCHEMA





HYDRAULIC REMOTE CONTROL ONE SERVICE PORT **RCV**

ORDER EXAMPLE = RCV: 01V - A01 - MA - RA G02

RCV product type _____

1 CONTROL CLASSIFICATION: _____

01V control type

2 METERING CURVE: _____

A01 curve type

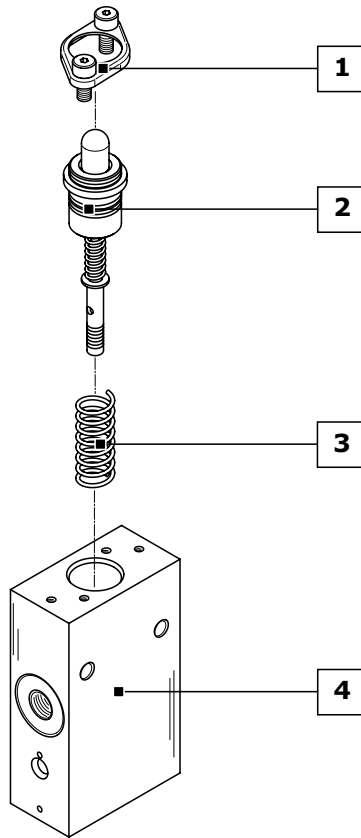
3 RETURN SPRING: _____

MA return spring type

4 BODY ARRANGEMENT: _____

RA body specification

G02 body thread



1	CONTROL CLASSIFICATION: (page 60)
00H	Without control with return spring in neutral position
01V	Wheel operated hydraulic remote control rotated 360° with stopping in each position
01S	Foot pedal with return spring in neutral position
2	METERING CURVE: (page 70)
A01	Linear metering curve with step
B01	Linear metering curve without step
C01	Broken line metering curve with step
D01	Broken line metering curve without step
3	RETURN SPRING: (page 79)
MA	Preload 25 N - End stroke load 48 N
MB	Preload 14 N - End stroke load 27 N
MC	Preload 73 N - End stroke load 135 N
MD	Preload 89 N - End stroke load 169 N
4	BODY ARRANGEMENT: (page 61)
RA G02	Standard Body (G 1/4 ports)
RA U02	Standard Body (9/16"-18 UNF ports)



RCV HYDRAULIC REMOTE CONTROL ONE SERVICE PORT

CONTROL KIT CLASSIFICATION

All controls installed on the foot pedal RCV are interchangeable: the controls shown correspond to standard configurations; for different applications contact our Commercial Dept.

Code	Dimensions	Schema	Description
00H			Without control with return spring in neutral position
01V			Wheel operated hydraulic remote control rotated 360° with stopping in each position
01S			Foot pedal with return spring in neutral position (standard)



HYDRAULIC REMOTE CONTROL ONE SERVICE PORT **RCV**

BODY ARRANGEMENT

The hydraulic remote control RCV has only one setting body, the only variable is represented by a different thread.

Code	Configuration	Schema	Description
RA G02			Standard body with ports G 1/4
RA U02			Standard body with ports 9/16" - 18 UNF

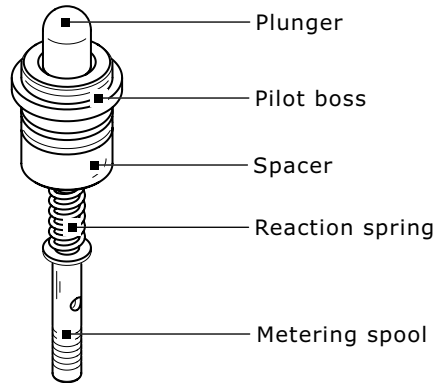


METERING CURVE CLASSIFICATION

All the Hydrocontrol servo control configurations imply the choice of a "metering curve" kit; the number of metering curves changes according to the number of product service ports. The metering curve classification depends on the working pressure (measured in bars) and stroke length (measured in mm).

The sketch here below shows a typical metering curve and the list of available curves.

For information on the complete list of curves, contact the manufacturer's Commercial department.



Type	Diagram	Description		
A	<p>Pressure (bar)</p> <p>B</p> <p>A</p> <p>C D Stroke (mm)</p>	<p>Linear metering curve with step</p>		
CODE	PRESSURE		STROKE	
	A (bar)	B (bar)	C (mm)	D (mm)
A01	5,8	19,5	1,5	7,5
A02	5	25	1,5	7,5
A03	2	13	1,5	7,5
A04	6	40	1,5	7,5
A05	0	64	1,5	7,5
A06	4	17	1,5	7,5
A07	5	15	1,5	7,5
A08	2	18	1,5	7,5
A09	5	20	1,5	6
A10	2	8	1,5	7,5
A11	4	10	1,5	7,5
A12	11,5	32	1,5	7,5
A13	10	20	1,5	7,5
A14	7	17	1,5	7,5
A15	7,5	29	1,5	7,5



CODE	PRESSURE		STROKE	
	A (bar)	B (bar)	C (mm)	D (mm)
A16	6	22	1,5	7,5
A17	0	20	1	7,5
A18	4	16	1,5	7
A19	6	20,6	1,5	7
A20	8	28	1,5	7,5
A21	5	20,5	1,5	7,5
A22	5,8	18,3	1,5	7
A23	6,8	23,5	1	7,5
A24	5,8	19,2	1	9,5
A25	4,4	17,9	1	6,5
A26	2,8	20,8	1,5	10
A27	5,7	19,1	1,5	7,5
A28	3	16,2	1,5	7,5
A29	8	27,6	1,5	9,5
A30	5,8	15,5	1,5	7,5
A31	5,6	25,2	1,5	7,5
A32	7	15,5	1,2	7,5
A33	10,7	27,5	1	7,5
A34	0	28	1,5	7,5
A35	5,8	24	1,5	9,5
A36	7,4	21	1,5	7,5
A38	7,5	17,7	1,5	7,5
A39	6,6	16,4	1,5	7,5
A40	6,5	11,6	1,5	7,5
A41	5,9	17,4	1,5	7,5
A42	6,6	16,3	1,5	9,5
A43	3	22,2	1,5	7,5
A44	14,5	26,9	1	7,5
A45	8,7	39,2	1,5	7,5
A46	4	22	1,5	7,5
A47	14,7	28,4	1,5	7,5
A48	5	74	1	7,5
A49	0	34	1,5	7,5
A51	7,3	21,7	1,5	7
A52	10	79	1	7,5
A54	4	20	1,5	7,5
A55	3	20	4,5	7,5
A56	5	20	1,5	4,5
A61	5	19	1,5	7
A62	8	22	1,5	7,5
A64	6,8	26	1,5	7,5
A65	6,8	24,4	1,5	7
A67	2,5	14	1	7,5
A68	7,5	20,9	1,5	9,5
A99	6	19	1	3,5



Type	Diagram	Description		
B		Linear metering curve without step		
CODE	PRESSURE		STROKE	
	A (bar)	B (bar)	C (mm)	D (mm)
B01	5	22	1,5	8
B02	5	19	1,5	8
B03	5	16	1,5	8
B04	2	16,5	1,5	8
B05	7,5	32,5	1	8
B06	5	20	1	8
B07	4	10,5	1,5	8
B08	3	14,5	1,5	8
B09	6	24,3	1	8
B10	2	19,3	1,5	8
B11	7,1	21,9	1	8
B12	8,3	23,2	1	8
B13	7,9	23,6	1	8
B14	6	23	1,5	8
B15	10,2	25,8	1	8
B16	6,9	12,4	1,5	8
B17	2,1	20,3	1	8
B18	5,8	27	1,5	8
B19	3,2	24,4	1,5	8
B20	2	8,5	1,5	8
B21	2	13,7	1,5	8
B22	5,8	16,4	1,2	7,7
B23	4	18	1,5	8
B24	10,2	25,1	1	8
B25	4,5	23,9	1,5	8
B27	7,5	18,9	1	8
B29	3	23,8	1,5	8
B30	6	42	1,5	8
B31	4	29	1	8
B35	6,5	20	1	8
B36	7,8	20,2	1	8
B98	6	14,5	1,2	8
B99	4,5	14,5	1,5	8



Type	Diagram	Description				
C	<p>Pressure (bar)</p> <p>Stroke (mm)</p>	Broke line metering curve with step				
CODE	PRESSURE			STROKE		
	A (bar)	B (bar)	C (bar)	D (mm)	E (mm)	F (mm)
C01	2	6	15	1,5	5	7,5
C02	3	7	16	1,5	5	7,5
C03	7	18	27	0,5	4,8	6,5
C04	7	18	27	0,5	6,3	8
C05	5	11	18	1	5	7,5
C07	4,2	9	20	1,5	5	7,5
C08	6,5	11	18,5	1	5	7,5
C10	5,4	10,9	17,3	1	5	7,5
C11	4,2	9	20	1,5	5	7,5
C98	1	2,5	9	1	4,2	8,5
C99	1	2,5	9	1	4,2	9

Type	Diagram	Description				
D	<p>Pressure (bar)</p> <p>Stroke (mm)</p>	Broke line metering curve without step				
CODE	PRESSURE			STROKE		
	A (bar)	B (bar)	C (bar)	D (mm)	E (mm)	F (mm)
D01	2	6	15	1,5	5	8
D02	4,2	9	22	1	5	8
D04	5	16,2	20	1,5	7,5	8
D07	4,2	9	22,2	1,5	5	8



METERING CURVE CLASSIFICATION FOR FOOT PEDAL RCS - RCT

The RCS and RCT tilting foot controls imply the use of limited-stroke dedicated curves guaranteeing improved control ergonomics. Metering curves are available equipped with a swing-preventing dampening device; for more informations contact our Commercial Dept.

Type	Diagram	Description		
A		Linear metering curve with step		
CODE	PRESSURE		STROKE	
	A (bar)	B (bar)	C (mm)	D (mm)
A01T	5,8	19,5	1	5
A02T	5	25	1	5
A06T	4	17	1	5
A07T	5	15	1	5
A16T	6	22	1	5
A20T	8	28	1	5
A52T	5	22	1	5
A53T	6	26	1	5



Type	Diagram	Description		
B	<p>Pressure (bar) B</p> <p style="text-align: center;">D Stroke (mm)</p>	<p>Linear metering curve without step</p>		
CODE	PRESSURE		STROKE	
	A (bar)	B (bar)	C (mm)	D (mm)
B03T	5	16	1	5,5
B14T	6	23	1	5,5
B23T	4	18,6	1,5	5
B32T	5	27,5	1,5	5
B40T	6	18,7	1	4,2



METERING CURVE CLASSIFICATION FOR HYDRAULIC REMOTE CONTROL RCL - RCY

The RCL and RCY hydraulic remote controls imply the use of dedicated curves, specially designed to reduce actuation forces. The available choices are shown here below.

Type	Diagram	Description		
A	<p>Pressure (bar)</p> <p>B</p> <p>A</p> <p>C D Stroke (mm)</p>	Linear metering curve with step		
CODE	PRESSURE		STROKE	
	A (bar)	B (bar)	C (mm)	D (mm)
A01	5,8	19,5	1,5	7,5
A02	5	25	1,5	7,5
A06	4	17	1,5	7,5
A07	5	15	1,5	7,5
A14	7	17	1,5	7,5
A21	5	20,5	1,5	7,5
A23	6,8	23,5	1	7,5
A24	5,8	19,2	1,5	9,5
A35	5,8	24	1,5	9,5
A36	7,4	21	1,5	7,5
A37	7,3	19,3	1,5	7
A47	14,7	28,4	1,5	7,5
A50	5	26,8	1	7,5
A53	6	26	1,5	7,5
A54	4	20	1,5	7,5
A57	6,6	22,7	1,5	7,5
A59	5	26,8	1	6,5
A60	5	26,8	1	8,5
A65	6,5	23,7	1,5	7,5
A69	5,6	21,6	1,5	7,5
A70	6,5	23,7	1	7,5
A71	6,9	25,2	1,5	9,5
A72	9,2	27,5	1,5	9,5



Type	Diagram	Description		
B	<p>Pressure (bar) B A C D Stroke (mm)</p>	Linear metering curve without step		
CODE	PRESSURE		STROKE	
	A (bar)	B (bar)	C (mm)	D (mm)
B06	5	20	1	8
B09	6	24,3	1	8
B28	8,2	26,8	1	8
B33	5,9	24,8	1,5	8
B37	5	15,8	1,5	8
B38	6,3	21,2	1,5	8
B39	2,7	15	1,5	8
B41	5	26,6	1,5	8
B42	5,8	25,1	1,5	10

Type	Diagram	Description				
D	<p>Pressure (bar) C B A D E F Stroke (mm)</p>	Broke line metering curve without step				
CODE	PRESSURE			STROKE		
	A (bar)	B (bar)	C (bar)	D (mm)	E (mm)	F (mm)
D03	5,2	14,4	30,9	1,5	5	8

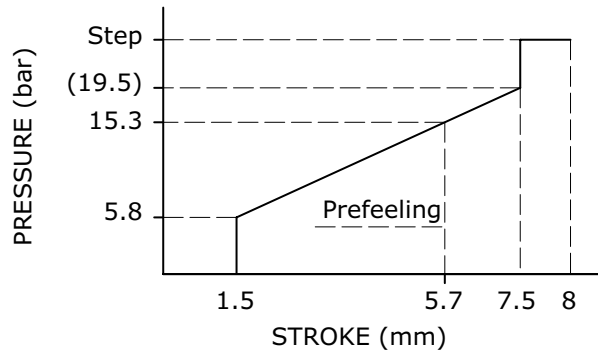


PREFEELING - MECHANICAL DETENT

The prefeeling function enables users to safely lock the lever adjustment without accidentally reaching the point of detent. When choosing from the metering curves shown, the reduced adjustment stroke should be taken into consideration, and a curve should be chosen allowing the required pressure value to be reached at the prefeeling stage.

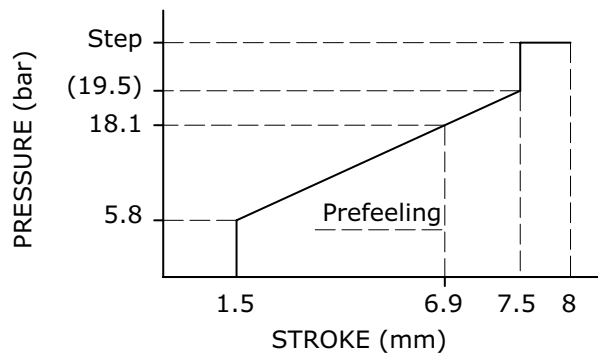
The RCX and RCY hydraulic remote controls have a prefeeling setting at 5.7 mm along the stroke in combination with the mechanical detent (code 02).

The RCX, RCY prefeeling effect on the A01 curve is shown by way of example.



Similarly, the RCM and RCB hydraulic remote controls have a prefeeling setting at 6.9 mm along the stroke in combination with the mechanical detents (codes 02, 03 and 04).

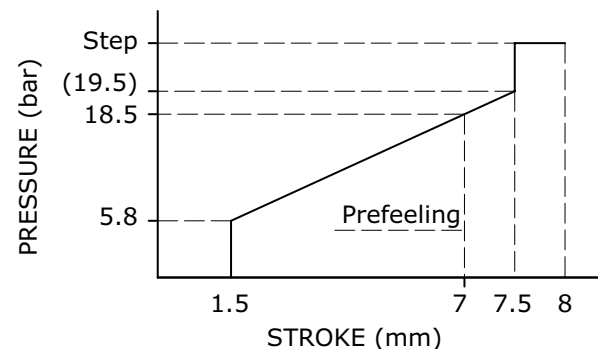
The RCM, RCB prefeeling effect on the A01 curve is shown by way of example.



PREFEELING - ELECTROMAGNETIC DETENT

The RCL and RCL3 hydraulic remote controls are designed with prefeeling before the electromagnetic detent point is reached. In this case, the prefeeling is set at 7 mm along the stroke.

The RCL, RCL3 prefeeling effect on the A01 curve is shown by way of example.

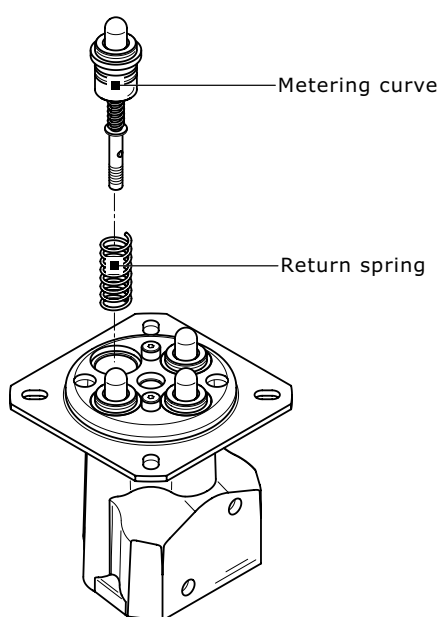




RETURN SPRING CLASSIFICATION

For all the servo control configurations designed by Hydrocontrol, in each service port and on the relevant metering curve, a return spring must be selected.

The exploded view here below shows the example configuration of a 4 service port remote control; as you can see, a return spring is pictured at each metering curve. 4 types of return spring are currently available (see table).



CODE	PRELOAD	END STROKE LOAD
MA	25 N	48 N
MB	14 N	27 N
MC	73 N	135 N
MD	89 N	169 N

RETURN SPRING CLASSIFICATION FOR RCS AND RCT

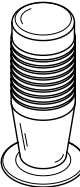
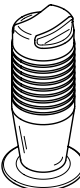


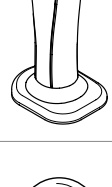



The range of RCS and RCT tilting foot controls only includes the MD type return spring. The relative values are shown here below.

CODE	PRELOAD	END STROKE LOAD
MD	94 N	149 N



HANDLES CLASSIFICATION

All the hydraulic remote controls manufactured by Hydrocontrol can be set up to have different handles according to the system dimensions and applications. All the handles in the range are shown here below; for each handle, the corresponding operation is also pictured. The choice of a handle will also influence the choice of a lever kit.

HANDLE IDENTIFICATION - QUICK REFERENCE GUIDE								
Type	Description	RCX	RCY	RCL	RCL3	RCM	RCB	
A	 Handle without micro-switch	•	•			•		
B	 Handle with micro-switch to close	•	•			•		
C	 Handle with micro-switch to close with detent	•	•			•		
D	 Handle with dual micro-switch	•	•			•		
F	 Ergonomic handle	•	•	•	•			
M	 Handle with lens					•	•	
S	 Ergonomic handle slim	•	•	•				
K	 Spherical handle	•	•					



HANDLES "A - B - C - D"

The handle families identified with A, B, C and D have been designed to equip the vast range of earth-moving machines including mini-excavators, mini-loaders, brush cutters, backhoe loaders, tractors, etc.

These handles can be set up to have – or not – a microswitch.

The hydraulic remote controls most suitable for fitting these handles are HC-RCX, HC-RCY and HC-RCM.

Type	Description	Dimensions	Configuration
A	without micro-switch (standard)		
B	with micro-switch to close		
C	with micro-switch to close with detent		
D	with dual micro-switch		

HANDLES MICROSWITCH BREAKING B - C - D

MICROSWITCH SPECIFICATIONS	
Direct current load resistive	4.8 A 30 Vdc
Alternative current load resistive	1.5 A 30 Vdc
TECHNICAL SPECIFICATIONS	
Hande protection	IP 40



HANDLE "F"

This handle has been designed to be used on our remote controls type RCX. Its ergonomics, the accurate buttons position and dimensions make its use comfortable and restful. It can be supplied with 7 microswitches in different combinations together with a push button for safety.

Type	Description	Dimensions	Configuration
F	Ergonomic handle		

TECHNICAL SPECIFICATIONS

BUTTONS COLOURS	
Type A	red
Type B - C	yellow
Type D - E	green
Type F - G	grey
Type H (push button for safety)	black
MICROSWITCH SPECIFICATIONS	
Direct current load resistive	5 A 30 Vdc
Direct current load inductive	3 A 30 Vdc
TECHNICAL SPECIFICATIONS	
Handle protection	IP 65
Cable section	0,5 mm ²
Useful cable length	700 mm

ORDER EXAMPLE HANDLE "F"

05F - 01R - 2 - WF53

- 1 **FRONT BUTTONS ARRANGEMENT:** _____
- 05F** arrangement with 5 front buttons
- 2 **REAR BUTTONS ARRANGEMENT:** _____
- 01R** arrangement with 1 rear button
- 3 **HANDLE POSITION (RESPECT TO THE BODY):** _____
- 2** return spring type
- 4 **LEVER ROD CLASSIFICATION:** _____
- WF53** type and length rod lever straight
- WG51** type and length rod lever bent
- WH48** type and length rod lever bent



FRONT BUTTONS ARRANGEMENT		
Code	Drawing	Schema
00F		
01F		<pre> A E- 1 2 </pre>
02F		<pre> B C E- E- 3 4 5 6 </pre>
03F		<pre> A B C E- E- E- 1 2 3 4 5 6 </pre>
04F		<pre> B C D E E- E- E- E- 3 4 5 6 7 8 9 10 </pre>
05F		<pre> A B C D E E- E- E- E- E- 1 2 3 4 5 6 7 8 9 10 </pre>

REAR BUTTONS ARRANGEMENT		
Code	Drawing	Schema
00R		
01R		<pre> F E- 11 12 </pre>
02R		<pre> F G E- E- 11 12 13 14 </pre>
03R		<pre> H E- 15 16 </pre>
04R		<pre> F H E- E- 11 12 15 16 </pre>
05R		<pre> F G H E- E- E- 11 12 13 14 15 16 </pre>



HC-SADR2 SILENT ALERTER DRIVER - HANDLE "F" WITH VIBRATION

SADR2 with vibration (silent alarm) is an ergonomic handle which, via a 'dead man' control, can transmit different frequency vibrations to the operator's hand. The handle can be equipped with up to three microswitches in its front side, while the rear side is always equipped with the 'dead man' control button; the special mechanical control design of the "Dead Man" button is necessary for vibration transmission. In addition to transmitting the required vibration, this button also works as an active button.

APPLICATION FIELD

The vibrating handle can be used to control crane trucks when the crane operator is not in a position to visually supervise the hanging load movement; in this case, the different-frequency vibration conveys to the operator information regarding the load movement and speed when visual or acoustic alarms would not be equally effective.

TECHNICAL SPECIFICATIONS

ELECTRIC	
Operating voltage	19.2 - 28.8 Vdc
Max current consumption (in standby)	80 mA
INPUT	
Input pulse frequency	0 - 65 Hz
Input pulse high level	17 - 28.8 Vdc
OUTPUT	
Alerting frequency	0 - 65 Hz
Max solenoid current (RMS)	800 mA
Protections	Reverse battery, "load-dump"
EM Immunity	30 V/m
MECHANICAL - ENVIRONMENTAL	
Operating temperature	-40 / +85 °C
Connections	Not terminated 3 conductors shielded cable
APPLIED STANDARDS	
EMC - Agricultural and forestry machines	EN 14982
EMC - Earth moving machinery	ISO 13766

ORDER EXAMPLE - "F" HANDLE WITH VIBRATION

The front of the handle can be equipped with up to 3 microswitches.

The order code are: **00F - 01F - 02F - 03F**

The choice of vibration corresponds to the ordering code 06R

		02F - 06R - 2 - WF53
1 FRONT BUTTONS ARRANGEMENT:	_____	
02F	arrangement with 2 front buttons	
2 REAR BUTTONS ARRANGEMENT:	_____	
06R	arrangement with vibration	
3 HANDLE POSITION (RESPECT TO THE BODY):	_____	
2	handle position	
4 LEVER ROD CLASSIFICATION:	_____	
WF53	type and length rod lever straight	
WG51	type and length rod lever bent	
WH48	type and length rod lever bent	



HANDLE POSITION "F" (RESPECT TO THE BODY)			
Code	Configuration	Code	Configuration
1		5	
2		6	
3		7	
4		8	



HANDLE "S"

This handle has been designed to be used on our remote controls type RCX. Its small size and low cost make this handle a competitive alternative for all off-highway machines manufacturers. The handle is equipped with a top push button (3A / 125 Vac).

Type	Description	Dimensions	Configuration
S	Ergonomic handle slim		

ORDER EXAMPLE HANDLE "S"

2 - WS76

- 1 HANDLE POSITION (RESPECT TO THE BODY):** _____
- 2 LEVER ROD CLASSIFICATION:** _____
- WS76** type and length rod lever straight
 - WT69** type and length rod lever bent
 - WU65** type and length rod lever bent

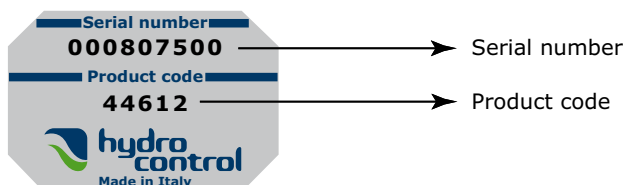
HANDLE POSITION "S" (RESPECT TO THE BODY)			
Code	Configuration	Code	Configuration
1		5	
2		6	
3		7	
4		8	



GENERAL CONDITIONS AND PATENTS

PRODUCT IDENTIFICATION

All Hydrocontrol products have an identifying plate placed in specific position.



SERIAL NUMBER:

It univocally identifies the physical valve: this provides an easy way to find all sales and production details.

PRODUCT CODE:

It is a number univocally identifying the configuration and pressure settings of a valve.

INTRODUCTION

These general conditions apply to all general supplies from Hydrocontrol s.p.a., after receiving orders from the Customer. Should commercial terms such as EXW, DDP, etc be mentioned, of course the Incoterms of the International Chamber of Commerce must be referred to, according to the test existing when the general supply conditions are agreed on.

MANAGEMENT OF ORDERS

No Customer's order is binding to Hydrocontrol s.p.a. if Hydrocontrol s.p.a. has not confirmed the order in writing. Hydrocontrol s.p.a. commits to supplying the orders in compliance with the order confirmation that has been issued. Any disagreement with the content of the order confirmation must be communicated in writing to Hydrocontrol s.p.a. within and no later than 5 days from the delivery of the order confirmation. The Customer commits to paying for the goods supplied by Hydrocontrol s.p.a., according to the prices indicated on the order confirmation.

PAYMENT CONDITIONS

The Parties agree on the payment terms at the beginning of the supply. The terms will be indicated on the order confirmation. Should the Customer be late with the payments, Hydrocontrol S.p.a. will be entitled to require the payment of interests on arrears based on the exiting Prime Rate increased by 2%. Should there be any payment delay, Hydrocontrol s.p.a. will be entitled not to process the Customer's purchase order, even if it has already been confirmed.

DELIVERY AND SHIPMENT

The goods are always supplied Ex Works, even when Hydrocontrol s.p.a. agrees with the Customer that the shipment, or a part of it, will be arranged by Hydrocontrol s.p.a. It is agreed that the Customer will bear the risk of goods deterioration or damaging from the moment the goods are handed by Hydrocontrol s.p.a. to the first carrier.

PRODUCT CHARACTERISTICS

Hydrocontrol s.p.a. commits to supplying good quality products, compliant with the technical specifications declared on the technical tables and on the catalogue. Hydrocontrol s.p.a, even without notice, at its own discretion, reserves the right to modify the products as necessary, without these changes altering the main characteristics of the products.

CLAIMS

Any claims about defects on delivered products (just as an example: claims about the packaging, the number, the quantity or the external product characteristics) will have to be notified to Hydrocontrol s.p.a. in writing, within and no later than 7 days from reception of the goods, otherwise the claims will be considered as null and void. Occult defects (the defects of the goods that cannot be spotted with a careful control of the goods received by the Customer), will have to be notified in writing to Hydrocontrol s.p.a. within 7 days from the discovery of the defect, and anyhow no later than 12 months from the delivery of the goods, otherwise the claim will be considered as null and void. Even in case of claim or objection, the Customer will never be entitled to suspend or delay the payments to Hydrocontrol s.p.a. for the products subject to claim or objection nor for any other supply.



GENERAL CONDITIONS AND PATENTS

WARRANTY

Should the products supplied by Hydrocontrol not be compliant or have the required quality and should this defect be due to Hydrocontrol, Hydrocontrol s.p.a. commits, at its choice, to replace or repair the faulty products, as long as the defect or lack of compliance is notified to Hydrocontrol s.p.a. in writing, as specified at point 6, within and no later than 18 months from product delivery. On the products that have been fixed or replaced in accordance with what specified above, the above-mentioned warranty applies. The 12 month duration starts from the date of repair or replacement. In case of defects, lack of quality or in case of lack of compliance for the supplied products, with the exception of fraud or serious offence, Hydrocontrol s.p.a. only commits to repairing or replacing the faulty products, according to what specified above. This warranty replaces any other Supplier's warranty or liability established by the law. This warranty excludes any other liability contractual or extra-contractual by Hydrocontrol s.p.a. on the products supplied by Hydrocontrol (as a mere example: damage refund, loss of profit, product recall campaign, etc). Hydrocontrol s.p.a. has signed a product civil liability police, with a suitable maximum coverage.

OWNERSHIP RETENTION

The products supplied by Hydrocontrol s.p.a. will be owned by the latter until Hydrocontrol receives the complete payment for the supplied goods.

OBLIGATION CONFIDENTIALITY

Hydrocontrol s.p.a. commits to not disclosing the technical and commercial information it receives from the Customer, unless this information has already been publicly disclosed.

PATENTS

The Customer is not allowed to use the provided Products, or a part of them, their descriptions or drawings protected or not protected by Patent or registered trademark in order to design or make similar products, unless Hydrocontrol s.p.a. previously issues its written authorization. Should Hydrocontrol s.p.a. give its written authorization, all patents, trademarks, registered designs, copyrights and intellectual property rights related or connected to the Products provided by Hydrocontrol s.p.a. will stay Hydrocontrol's property. The Customer commits to respecting the highest confidentiality.

APPLICABLE LAW AND COURT OF JURISDICTION

Hydrocontrol s.p.a.'s supplies are regulated by these General Supply Conditions and, for anything not defined here, by the Italian law. Any controversy related, generated or connected to the supply of Products by Hydrocontrol s.p.a., where Hydrocontrol s.p.a. is involved, will be exclusively dealt with by the Court of Bologna.