



## Monoblock Directional Control Valve RM 230

### Key valve features

RM 230 light is a monoblock valve, designed for max. operating pressures up to 3,000 psi (210 bar) and typ. pump flows up to 20 gpm (70 Lpm).

It is available with 1 to 4 sections per valve.

It is designed with an open center for fixed displacement pumps.

The valve can be operated manually, with cable or by pneumatic, electro-pneumatic and hydraulic remote control.

The valve offers excellent operating characteristics because of the specially designed spools for different applications.

Low and uniform spool forces are the result of careful balancing of the flow forces.

### Applications

Typical applications for RM 230 light are roll off trucks, cranes, refuse trucks and agricultural vehicles.

### Further properties and possibilities

- There are many configurations of spools and spool controls which make the valve suitable for a wide range of applications
- Two or more blocks can be connected in series

### Technical data

#### Pressures / Flows

Max. operating pressure per port:

P1, P2, A, B:	3,000 psi	210 bar
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T1, T2:	290 psi	20 bar
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Typical Nominal Inlet Flow:	20 gpm	75 Lpm
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Fluid temperature range:	5°F up to 176°F	-15°C up to +80°C
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#### Further data

Spool stroke:

Nominal:	± 0.25 in	± 6 mm
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4th position:	0.5 in	+12 mm
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Spool control force spool control 9:

Neutral position:	24.5 lbs	110 N
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Max. spool stroke:	31.5 lbs	140 N
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Detent in:	>67.4 lbs	>300 N
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Detent out:	<22.5 lbs	<100 N
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Permissible contamination level: Equal or better than 20/18/14 as per ISO 4406

Viscosity range: 10 – 400 mm<sup>2</sup>/s (cst) Higher viscosity allowed at start up

Leakage A, B -> T at 1,500 psi, 32 cSt and 104°F ≤ 13 cc/min (100 bar, 32 cSt and 40°C)

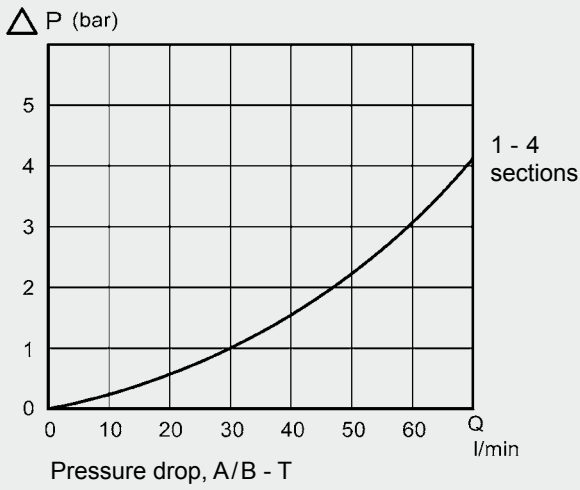
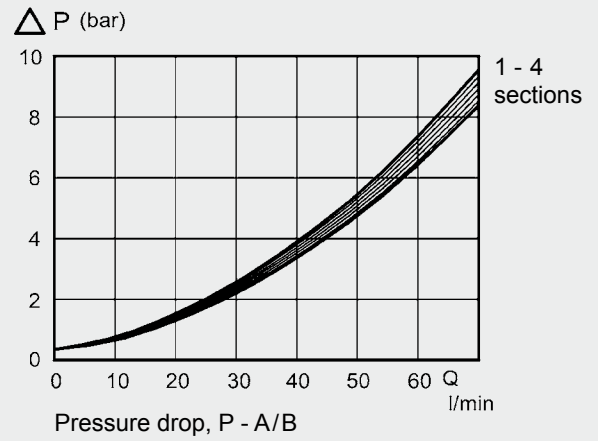
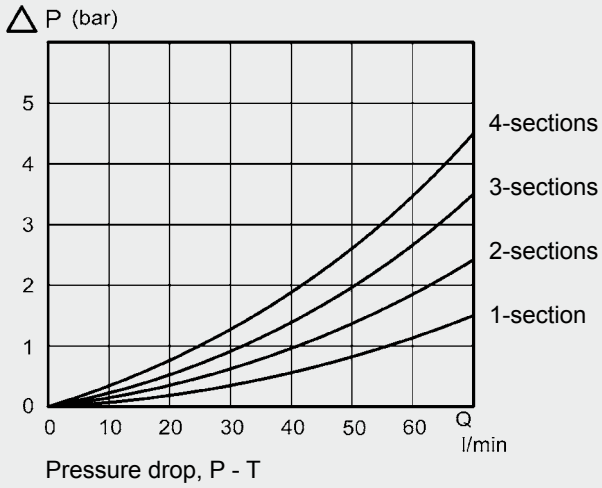
Pressure fluid: Mineral oil and synthetic oil based on mineral oil HL, HLP according to din 51524

Higher values are possible, depending on application. For applications with demands that exceed stated data above, please contact us for consideration.

MTTFd value after consultation with HYDAC.

# Pressure drop

Oil temperature / viscosity for all graphs: +104°F (+40°C) / 32 cSt



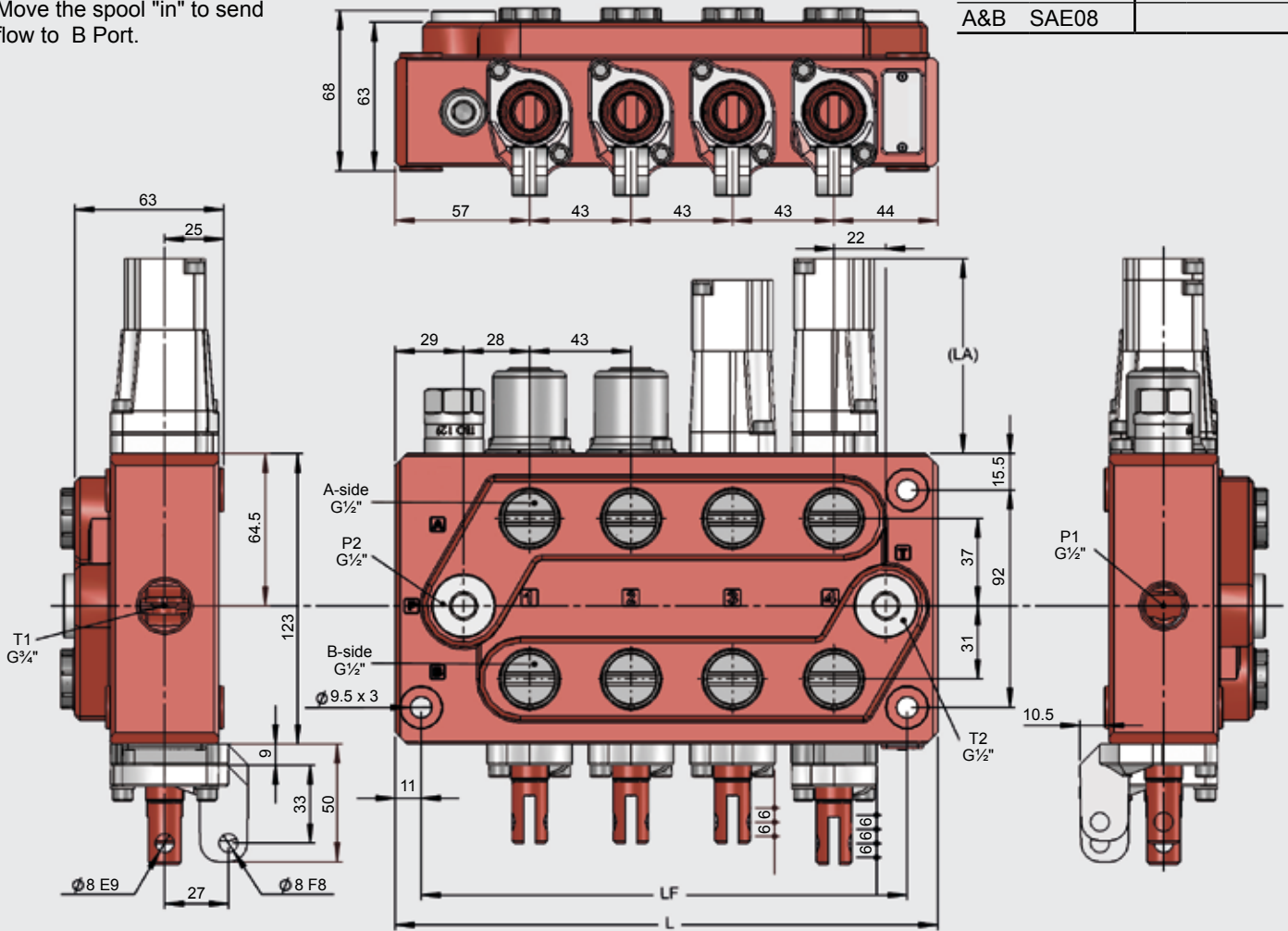
## Dimensions and weight

SAE ports are shown in the table.

Move the spool "in" to send flow to B Port.

### Port Sizes for US Models

P1	SAE10	P2	SAE08
T1	SAE12	T2	SAE08
A&B	SAE08		



Weights	Complete Valve	
1 section	8.8 lbs	4 kg
2 sections	15.4 lbs	7 kg
3 sections	19.8 lbs	9 kg
4 sections	24.2 lbs	11 kg

Measurements	L (in)	L (mm)	LF (in)	LF (mm)
1 section	4.0	101	3.0	77
2 sections	5.7	144	4.7	120
3 sections	7.4	187	6.4	163
4 sections	9.1	230	8.1	206



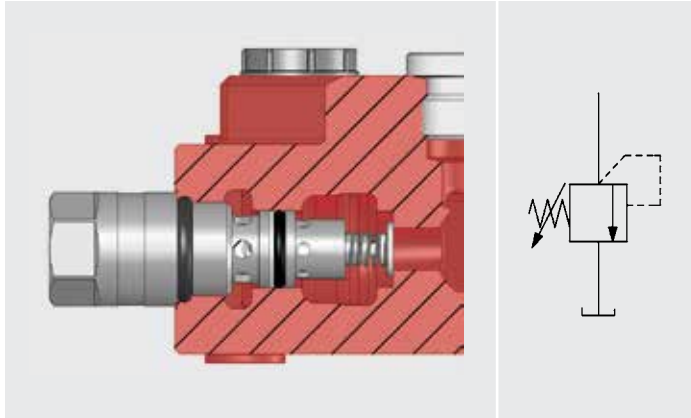
Type	LA (in)	LA (mm)	Type	LB (in)	LB (mm)
9	1.4	36.5	M19	1.6	41
9M	2.8	70	M211	2.0	50
9W	3.4	85.5	MM	3.5	88
10	2.9	73	3W	3.3	85
11	3.3	83	4W	3.7	94
13	2.9	73	HPD	2.8	70
14	2.9	73	HPDM	3.5	88
P	4.1	103	M2K	12.2	310
EP	4.1	103			
HPD	2.8	70			
L61-L63	3.9	98.5			
L64	3.9	100			

## Main relief valve

### Main relief valve TBD129

The TBD129 is a differential area, direct acting relief valve for the main circuit. The valve is combined with the A-side load check valve.

- Adjustable and sealable
- Setting range: 500-3,000 psi (35-210 bar)
- Setting range step: 100 psi (7 bar)



## Spool controls – A-Side

### Spool Control 9

9 Spring centering, 9M marine version, 9W for cable control



### Spool Control 10

Detents at positions 1, 2 and 3



### Spool Control 11

Spring centering with detent at position 4



### Spool Control 13

Spring centering with detent at position 2



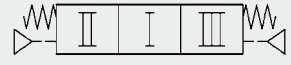
### Spool Control 14

Spring centering with detent at position 3



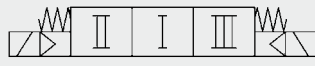
### Spool Control P

Pneumatic\*



### Spool Control EP

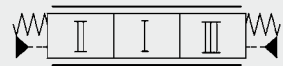
Electro / pneumatic on / off\*\*



### Spool Control HPD

Hydr. proportional Pilot pressure 85 - 230 psi (6-16 bar)

Max. pilot pressure 360 psi (25 bar)



### Spool Control L61

External hydraulic kick-out from inserted spool\*\*\*



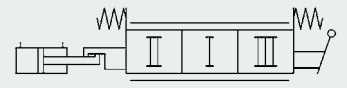
### Spool Control L62

External hydraulic kick-out from extended spool\*\*\*



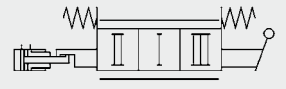
### Spool Control L63

External hydraulic kick-out from inserted and extended spool\*\*\*



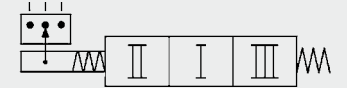
### Spool Control L64

External hydraulic kick-out from inserted and extended spool, locking neutral position\*\*\*



### Spool Control HLS 200

Spool position indicator.



\* Connection 1/8" BSP

\*\* Power consumption 4.8 W

Rated voltage 24 V

Max voltage variation +/- 10 %

Duty factor 100 %

Connection according to EN175301-803/B

Protection class IP65

\*\*\* Connection 1/4" BSP

## Spool controls – B-Side

### Bracket M19

Bracket for 3-position spool

### Bracket M2

Bracket for 3-position spool, without ear

### Bracket M29

Bracket for 4-position spool

### 3W

Cap for 3-position spool controlled by cable

### Bracket M111

Bracket for 3-position spool, gear ratio 11:1

### 4W

Cap for 4-position spool controlled by cable

### Bracket M211

Bracket for 4-position spool, gear ratio 11:1

### Lever M2K250

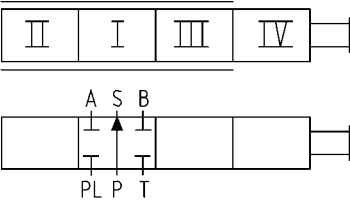
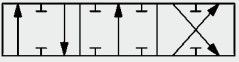
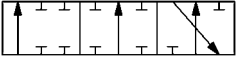
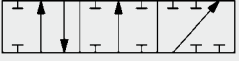
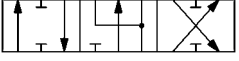
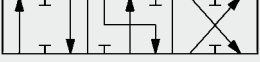

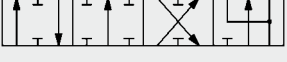
Coordinate lever for spool with 3 or 4 pos.

## Spools

Generally the spools are divided in 3 different flow ranges.

The letter indicating flow ranges is replaced by X. D = 5 - 8 gpm, K = 8 - 13 gpm, Q = >13 gpm.

In the table only the accessibility of different functions are shown.

	<p><b>Spools for general use</b></p> <p><b>Function</b></p>	<p><b>Code</b></p>
	<p>Double acting spool</p>	<p>1X</p>
	<p>Single acting spool P - A</p>	<p>2X</p>
	<p>Single acting spool P - B</p>	<p>2XB</p>
	<p>Motor spool</p>	<p>4X</p>
	<p>Motor spool A - T</p>	<p>4XA</p>
	<p>Motor spool B - T</p>	<p>4XB</p>
	<p>Double acting spool with 4th pos. for float</p>	<p>3X</p>

The RM 230 spools are available in a variety of flows and styles to accommodate most design requirements.

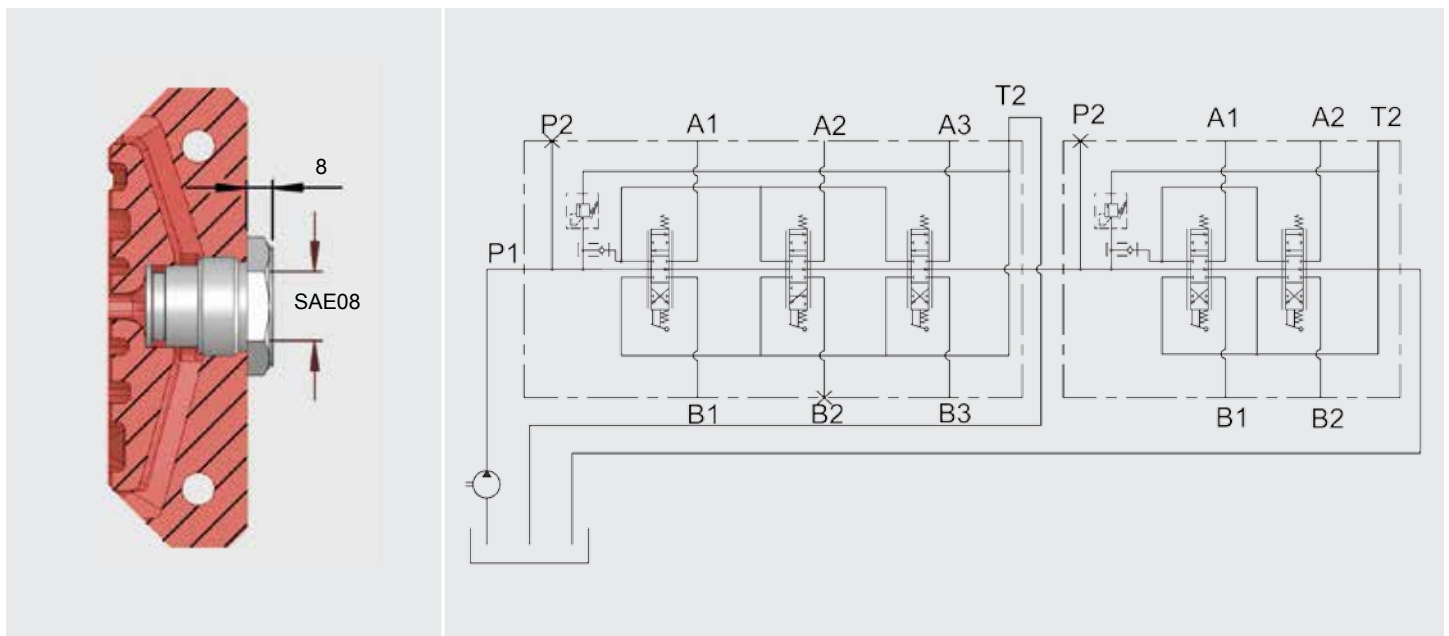
Since the development of spools is a continuous process and all available spools are not described in this data sheet, contact HYDAC for advice on choosing spools in order to optimize your valve configuration.

## High pressure carry-over

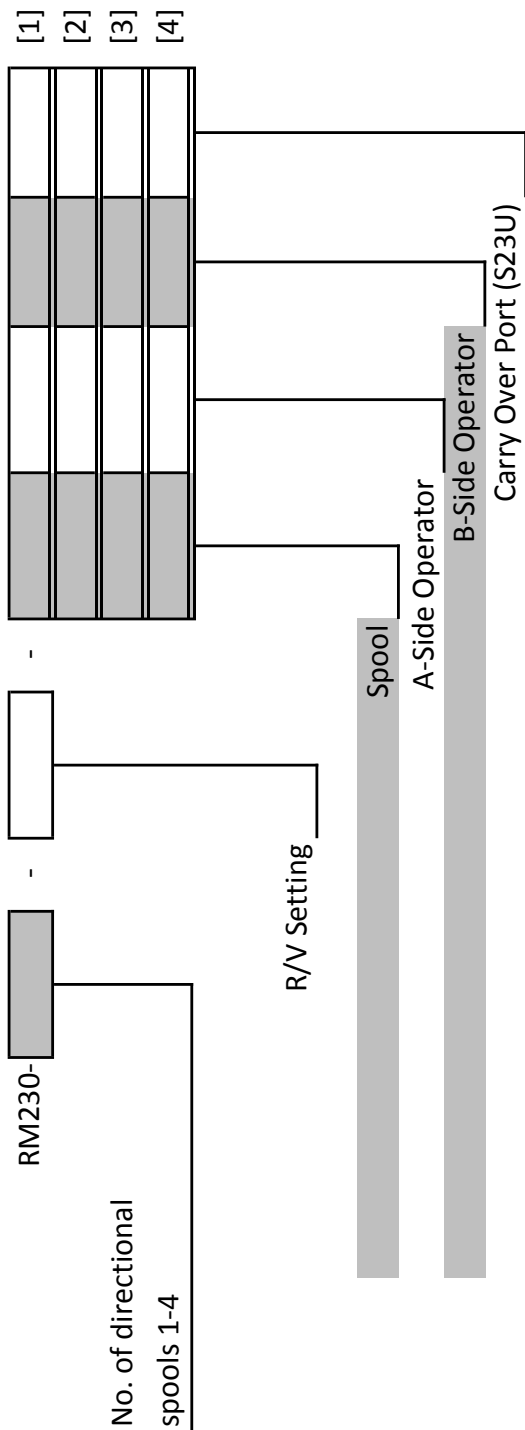
### High pressure carry-over nipple SU23

The type SU23 series nipple is used for series mounting of valve blocks when pipe or hose is used between the blocks.

When the high pressure carry-over nipple SU23 is used for series mounting, tank connection T2 for the first valve must always be connected to the tank (see diagram). Valve blocks connected in series give priority of flow to the first block in the series. This means that there will be no flow at block 2 if block 1 is fully activated.



**Ordering Details RM230 Sectional Control Valve**



**Application Information**

OEM:  
 Machine Type:  
 Pump Type:  
 Pump Flow:  
 System Pressure:

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**Note**

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.