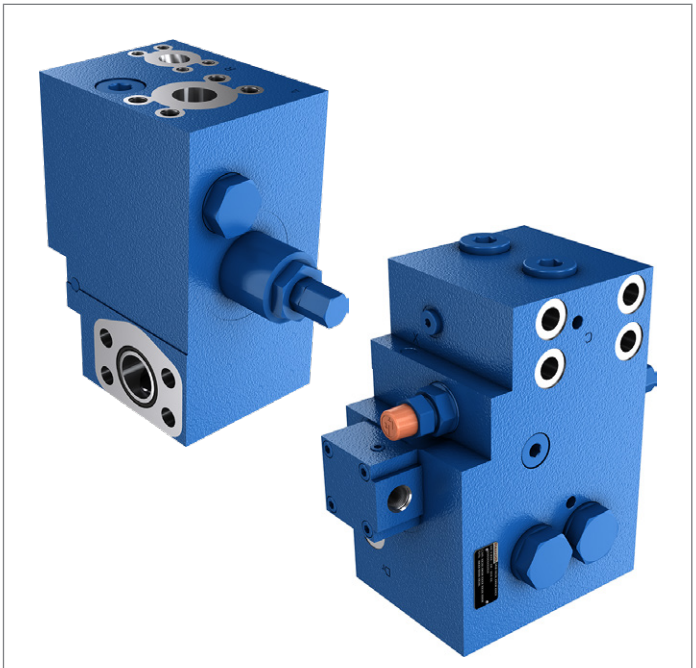
RE 64632/2021-08-25
Replaces: 2020-03-04

Pipe burst safety valve MHRB32, MHRB35



Example MHRB32

- No lowering of the load in neutral position, e.g. in excavators, cranes, wheeled loaders
- Direct attachment at cylinder with SAE connection diagram
- Size 32, 35
- Series 3X
- Nominal pressure 420 bar
- Maximum flow
  - Size 32: 700 l/min
  - Size 35: 1200 l/min

Features

- Satisfies the safety requirements according to ISO 8643, EN 474 and DIN 24093
- Very good, even fine control behavior
- Retrofitting of the MHRB valves possible without problems with specification of the directional valve control characteristics
- No change at the directional valve required
- Power losses (Δp values) during the lifting process are minimized

Contents

Functional description

Intended use

Pipe burst safety valves are hydraulic components and are thus neither covered by the application of completely nor partly completed machinery in the sense of the EC Machinery Directive 2006/42/EC. A component is exclusively intended to form an incomplete or a complete machine together with other components. The component may only be commissioned after it has been installed in the machine for which it is intended and the safety of the entire system has been established in accordance with the machinery directive.
Use is also to be provided for at machines at which pipe and/or hose burst between the directional valve and the consumer cylinders may cause dangerous situations.
In case of pipe and/or hose burst, the pipe burst safety valve of the MHRB series prevents an uncontrollable lowering at the consumer.
Apart from that, the consumer in neutral position is held in its position in a leak-free manner by the valve.
In the pipe burst safety valve MHRB, a secondary pressure limitation is moreover integrated protecting the consumer from overload.

Layout

The Pipe burst safety valve MHRB basically consists of:

- Housing (**1**)
- Control spool with leak-free locking (**2**)
- Control spring (**3**)
- Secondary pressure relief valve (**4**)
- Preload valve (**5**)
- Load-holding valve (**6**)

Function

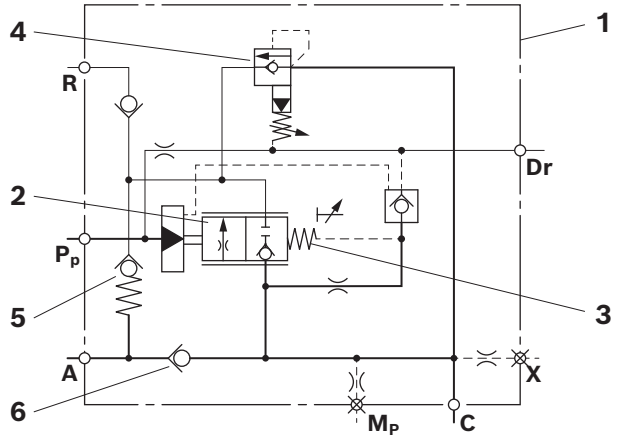
- Flow direction from **A** to **C**:
  The fluid flows via the load-holding valve (**6**) to port **C**.
- Flow direction from **C** to **A**:
  The increase in the pilot pressure (p_{St}) at port $\mathbf{P_p}$ first of all cancels the leak-free locking (**2**). In case of further increase in the pilot pressure (p_{St}), the control spool (**2**) releases the opening cross-section.

Overload warning, compensation line

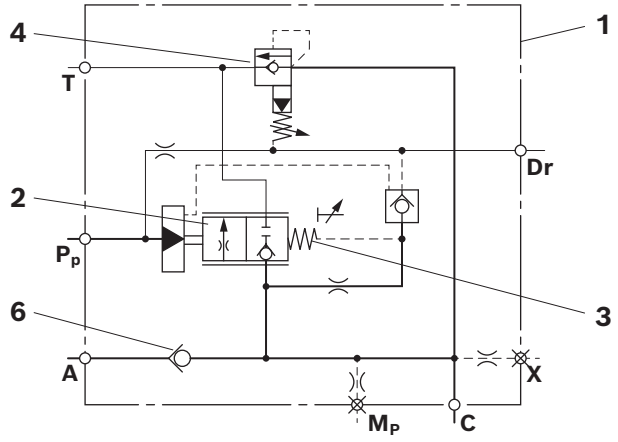
The measuring port (**X**) serves to check or connect an overload warning pressure switch.
In case of parallel operation (mechanical coupling of two cylinders), pressure compensation has to be ensured via port **X** by means of a connection, e.g. between two MHRB valves.

Notice
Observe the information on functional safety for earth-moving machinery according to DIN ISO 19014-1 as well the currently applicable standards for the relevant application, e.g. according to EN 474.

▼ **Design FGE**



▼ **Design FGS**



Ports	
A	Inlet port
C	Consumer port (cylinder)
R	Regeneration port
$\mathbf{P_p}$	Pilot oil port
Dr	Drain port
T	Tank port
X, $\mathbf{M_P}$	Measuring port

Type code

01	02	03	04	05		06	07		08	09	10	11		12	13	14		15	16
MHRB		**FG**		**3X**	**/**			**–**				**46**	**/**			**08**	**–**		*****

Series

01	Pipe burst safety valve Type MHRB	**MHRB**

Size

02	Size 32	**32**
	Size 35	**35**

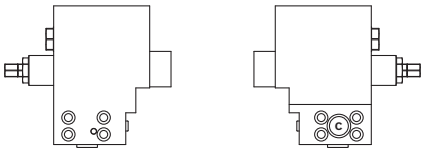
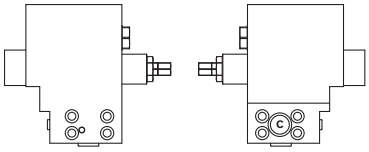
Design

03	Leak-free housing	**FG**
04	With regeneration	**E**
	With separate drain port[1]	**S**

Series

05	30 to 39 (unchanged installation and connection dimensions)	**3X**

Housing version

06	Left 	**L**
	Right 	**R**

Characteristic curve

07	Spool characteristic curve	**001** to **999**	**...**

Pressure relief valve (at 10 l/min)[2]

08	350 bar	**350**
	380 bar	**380**
	420 bar	**420**

Preload valve

09	Without preload valve		**N0**
	With preload valve (only for design **FGE**) [2]	3.5 bar	**R1**
		13 bar	**R2**

Sealing material

10	FKM (fluoroelastomer), standard	**V**
	NBR (nitrile rubber), on request	**M**

1) Only available without preload valve (**N0**)
2) More on request

01	02	03	04	05		06	07		08	09	10	11		12	13	14		15	16
MHRB		**FG**		**3X**	**/**			**–**				**46**	**/**			**08**	**–**		*****

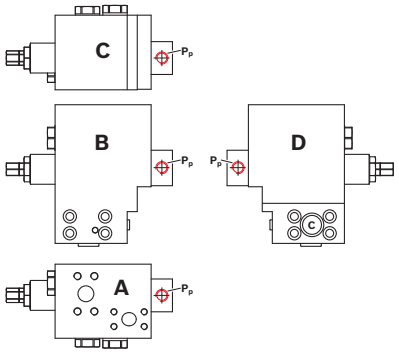
Line connections

11	SAE flange connections according to DIN ISO 6162-2						**46**
12	**A**	**C**	**T** (only for **FGS**)	**R** (only for **FGE**)	**P_p**	**Dr**	**X**	
	1 1/2 in	1 1/4 in	1 1/4 in	–	G 1/2	G 1/4	G 1/4	**1**
	1 1/2 in	1 1/2 in	–	1 in	G 1/2	G 1/2	G 1/4	**3**
	1 1/4 in	1 1/4 in	–	1 in	G 1/2	G 1/2	G 1/4	**K**
	1 1/4 in	1 1/4 in	1 in	–	G 1/2	G 1/2	G 1/4	**T**

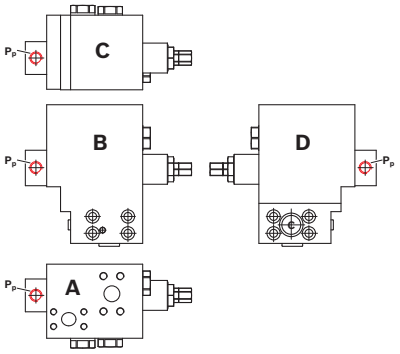
Position of port P_p

13	View A	**A**
	View B	**B**
	View C	**C**
	View D	**D**

Housing version left



Housing version right



Orifice in port X[2)]

14	0.8 mm	**08**

Position of port C (distance dimension to the housing edge)

15	Size 32	61.2 mm (standard)	**300**
		48.2 mm (only possible with **C** port 1 1/4 in)	**303**
	Size 35	85.2 mm (standard)	**306**

16	Further details in plain text	*****

2) More on request

Technical data

General				
Weight (approx.)	Size 32		kg	45
	Size 35		kg	54
Installation position				Any
Consumer connections				Flange connections according to DIN ISO 6162-2
Ambient temperature range		ϑ	°C	–15 to +80

Hydraulic				
Maximum working pressure at port	**A, C, R**	p	bar	420
	P_p	p_{St}	bar	40
	T	p	bar	30
	Dr	p	bar	Depressurized to the reservoir and/or on the same level as the pilot oil circuit of the directional valve
	X	p	bar	420
	M_P	p	bar	420
Maximum flow at port **C**	Size 32	q_v	l/min	700
	Size 35	q_v	l/min	1200
Hydraulic fluid				Mineral oil (HL, HLP) according to DIN 51524, see data sheet 90220. Other hydraulic fluids on request, e.g. environmentally acceptable fluids per ISO 15380 as specified in data sheet 90221.
Hydraulic fluid temperature range		ϑ	°C	–15 to +80
Viscosity range	Cold start	ν	mm²/s	380 to 2000
	Warm-up phase	ν	mm²/s	100 to 380
	Recommended range[1)]	ν	mm²/s	20 to 100
	Permissible range[2)]	ν	mm²/s	10 to 380
Maximum admissible degree of contamination of hydraulic fluid Cleanliness level per ISO 4406 (c)				Level 20/18/15, we recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$

Notice

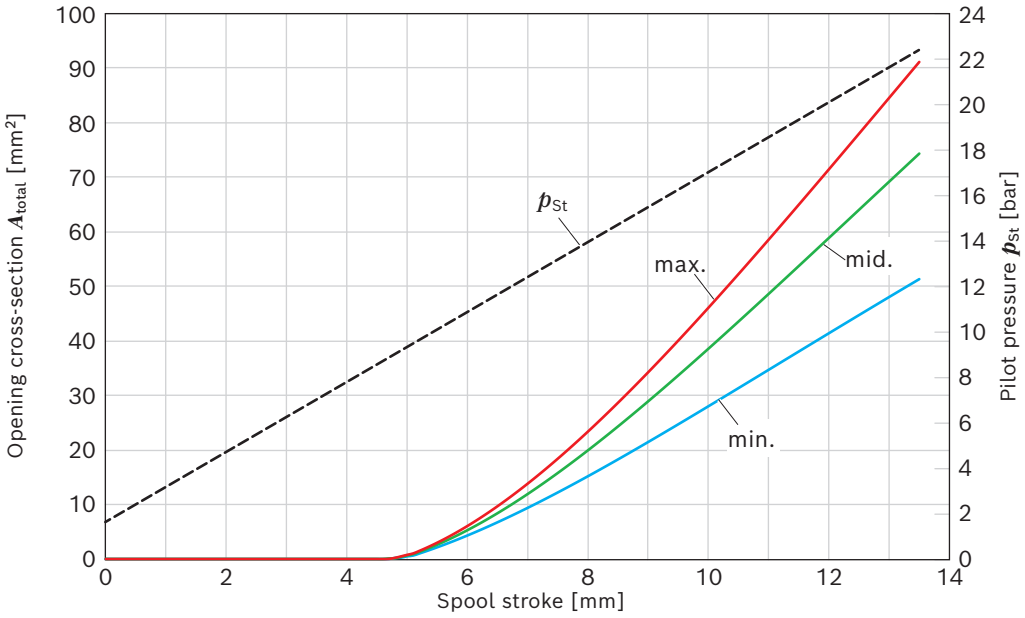
- For applications outside these parameters, please consult us!
- The technical data was determined at a viscosity of ν = 32 mm²/s (HLPD32; ϑ_{oil} = 40$^{\pm 5}$ °C).

1) Any operation outside the recommended range results in restrictions.

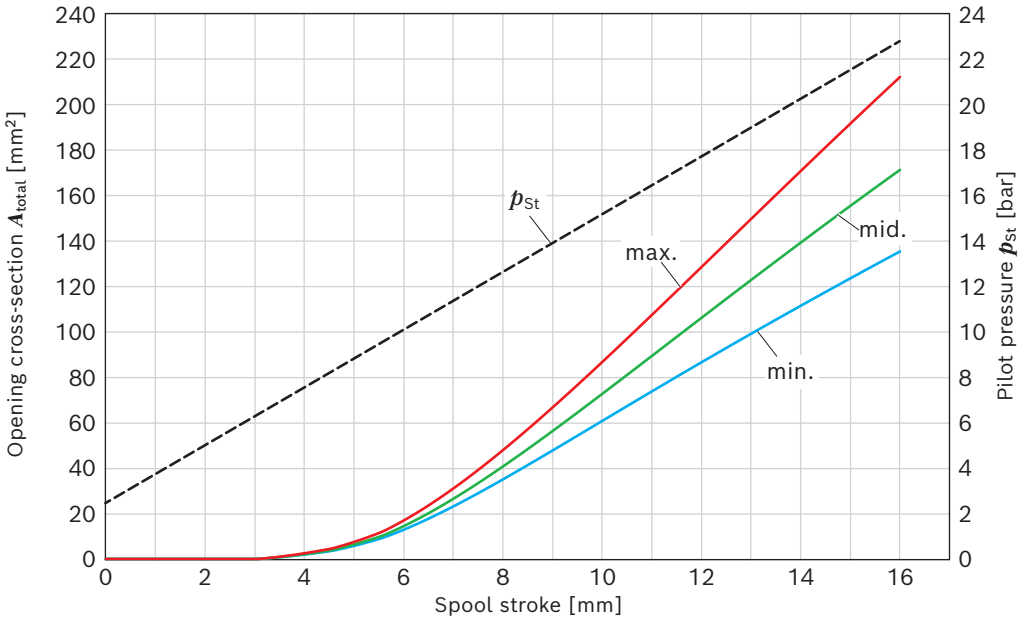
2) This corresponds, for example on the VG 46, to a temperature range of +5 °C to +85 °C.

Characteristic curves

▼ **Size 32**

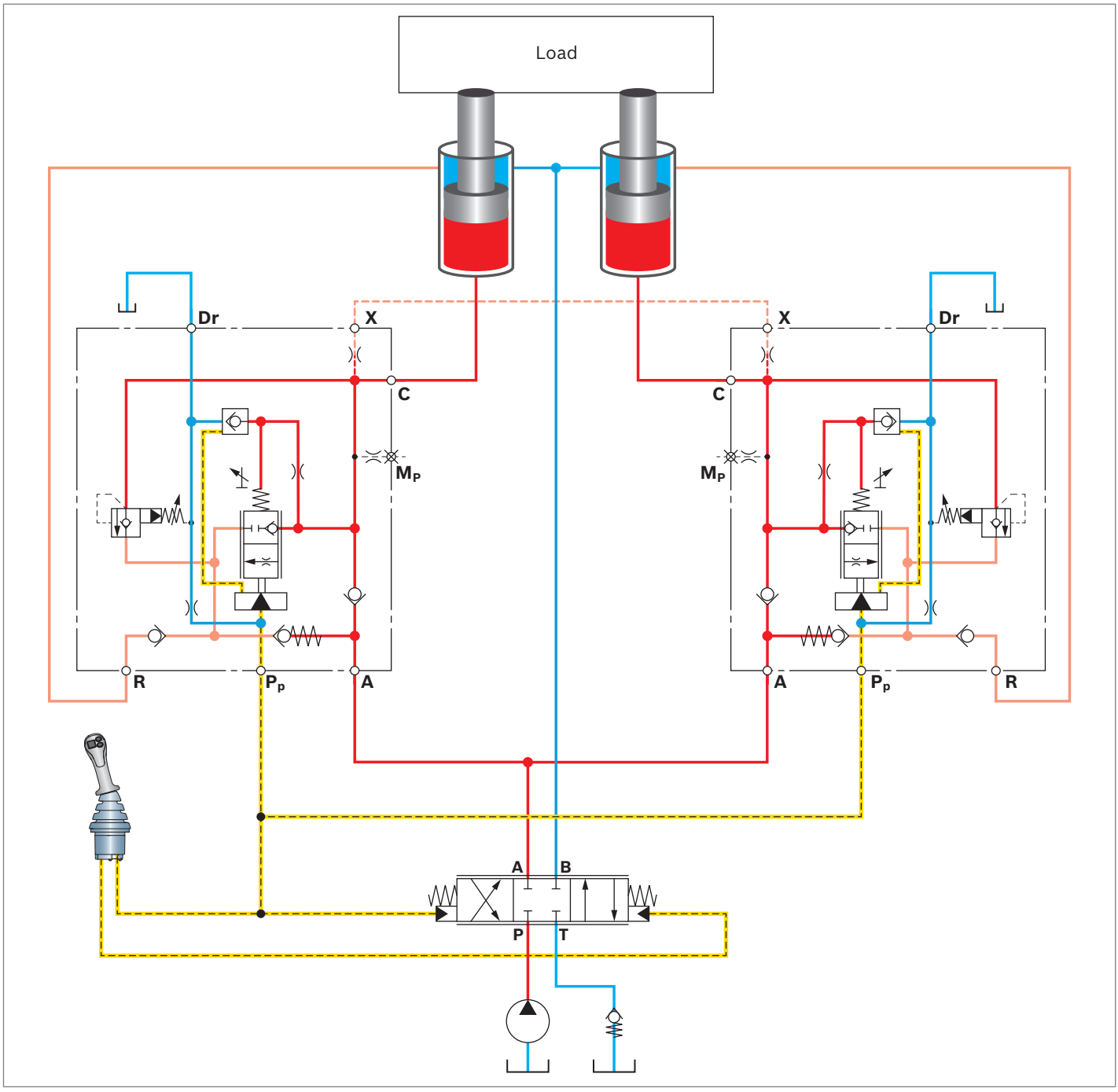


▼ **Size 35**



Installation example

▼ **MHRB..FGE**

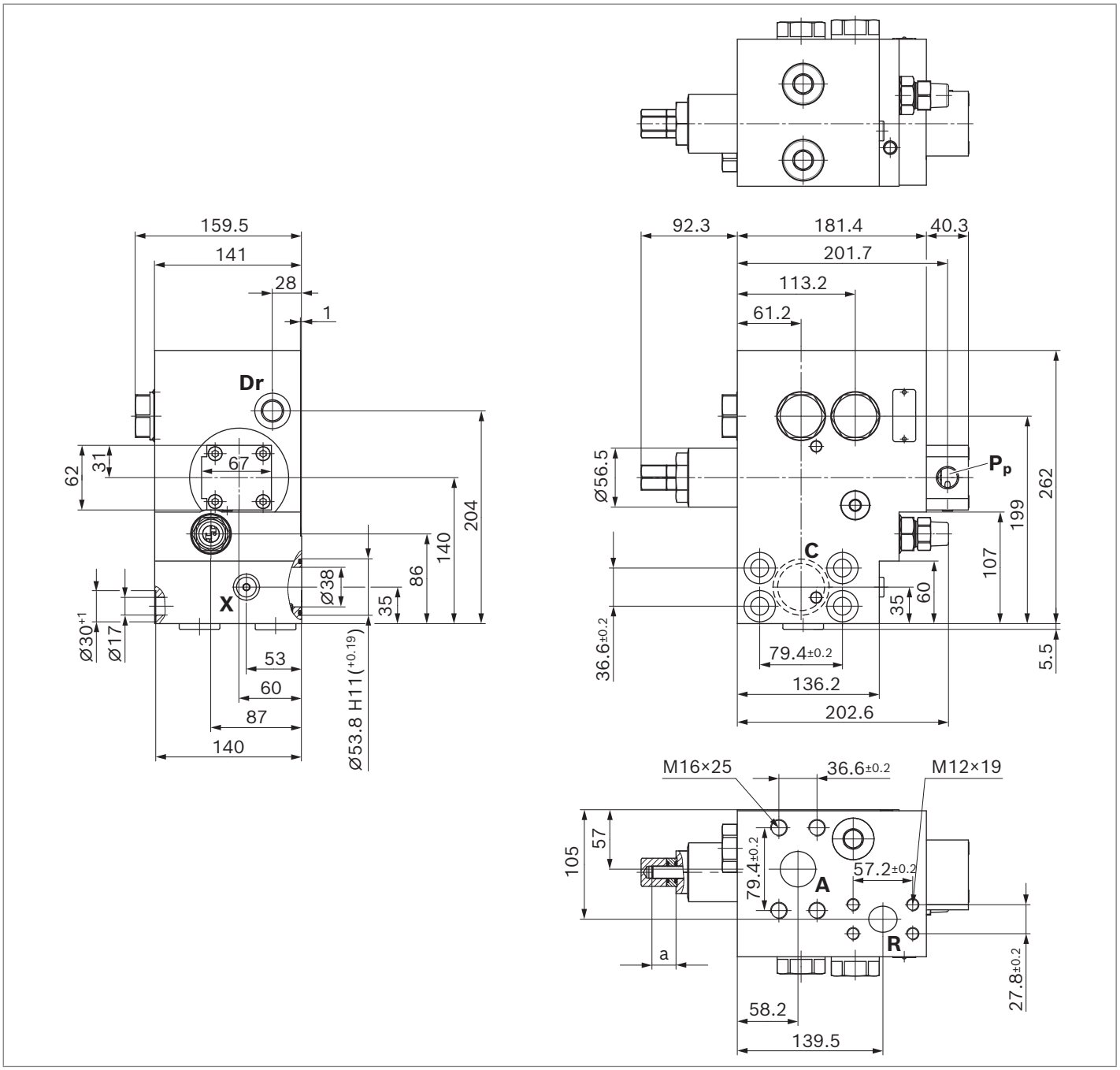


Dimensions

Size 32

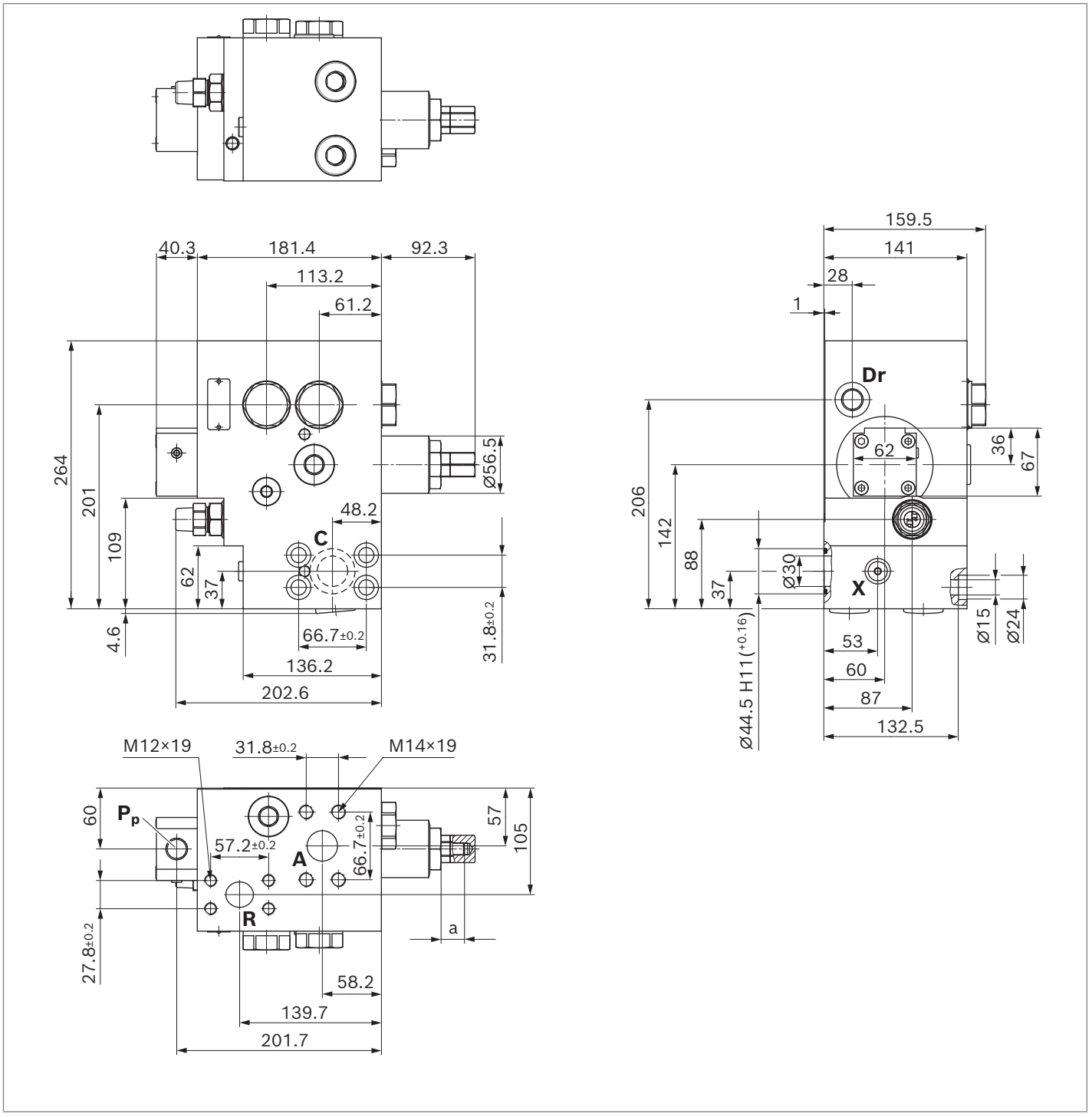
▼ **Design FGE, housing version left, port P_p in view B**

01	02	03	04	05		06	07		08	09	10	11		12	13	14		15	16
MHRB	**32**	**FG**	**E**	**3X**	**/**	**L**	**...**	**–**	**420**	**R1**	**V**	**46**	**/**	**3**	**B**	**08**	**–**	**300**	*****



▼ **Design FGE, housing version right, port P_p in view A**

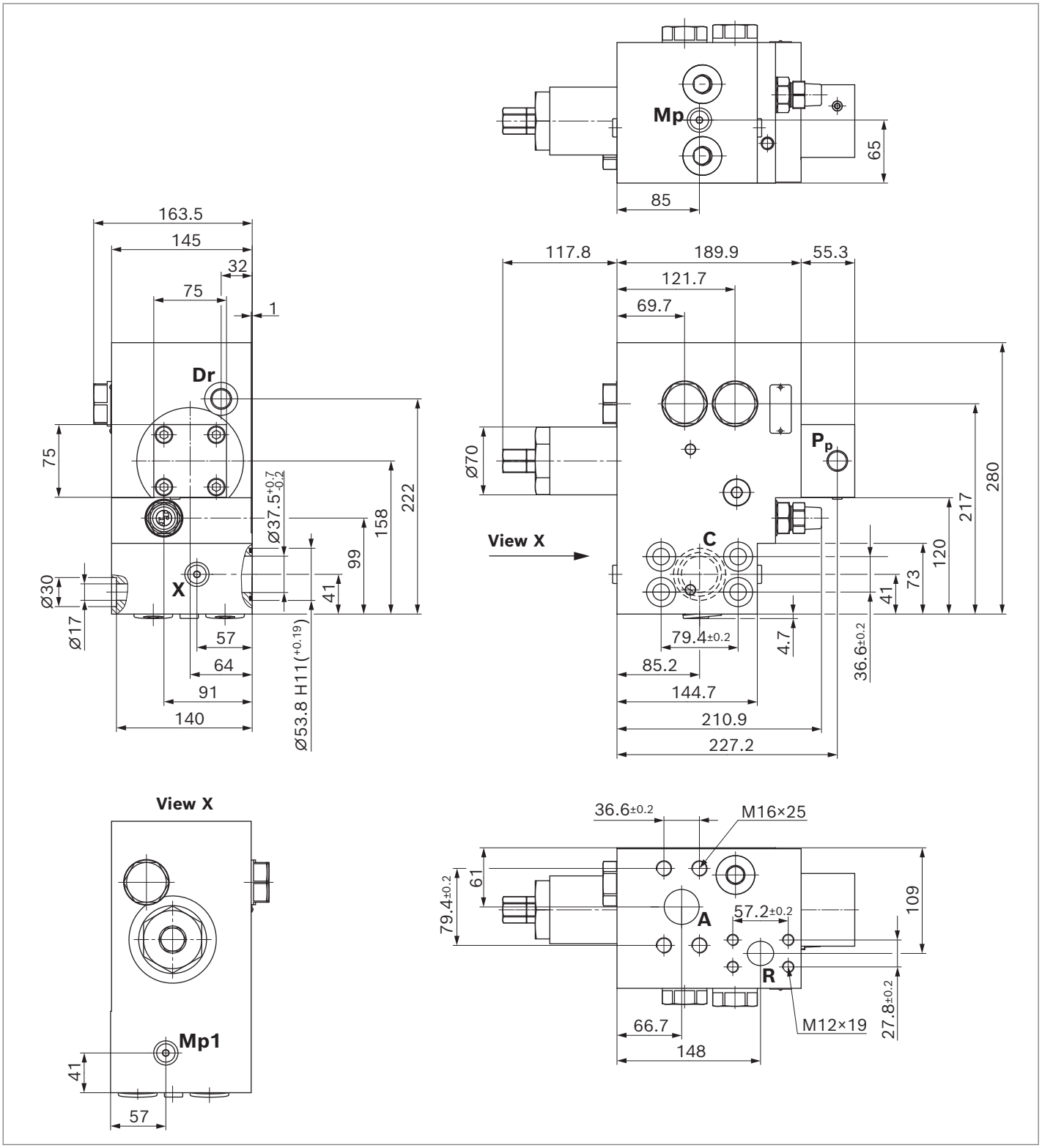
01	02	03	04	05		06	07		08	09	10	11		12	13	14		15	16
MHRB	**32**	**FG**	**E**	**3X**	**/**	**R**	**...**	**–**	**420**	**R1**	**V**	**46**	**/**	**K**	**A**	**08**	**–**	**303**	*****



Size 35

▼ **Design FGE, housing version left, port P_p in view B**

01	02	03	04	05		06	07		08	09	10	11		12	13	14		15	16
MHRB	35	FG	E	3X	/	L	...	–	420	R1	V	46	/	3	B	08	–	306	*



▼ **Design FGE, housing version right, port P_p in view B**

01	02	03	04	05		06	07		08	09	10	11		12	13	14		15	16
MHRB	**35**	**FG**	**E**	**3X**	**/**	**R**	**...**	**–**	**420**	**R1**	**V**	**46**	**/**	**3**	**B**	**08**	**–**	**306**	*****