

Fig No 4017

DZR

Commissioning Valve

Flow Data



In this flow data manual we have endeavoured to make the information as accurate as possible.

We cannot accept any responsibility should it be found that in any respect the information is inaccurate or incomplete or becomes so as a result of further developments or otherwise.

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Herz Valves UK Ltd.

Progress House, Moorfield Point, Moorfield Road
Slyfield Ind Estate, Guildford, Surrey GU1 1RU

Tel: 01483 502211
Fax: 01483 502025

e-mail: sales@herzvalves.com
Website: www.herzvalves.com

HERZ-Commissioning Valve PN16

June 2009

Issue 2

Technical Data

The flow rate can be calculated using the K_{Vs} value and a measured signal.

$$K_V = \frac{Q}{\sqrt{\Delta P}} \quad K_{Vs} = \frac{Q}{\sqrt{\Delta P_s}}$$

where K_V & K_{Vs} = flow coefficient (m^3/hr at 1 bar differential)

Q = flow rate (m^3/hr)

ΔP = headloss attributable to valve (bar)

ΔP_s = differential press across tappings (signal) (bar)

Flow Coefficient

Size	1/2" LF	1/2" MF	1/2"	3/4"	1"	1 1/4"
K_{Vs}	0.48	0.97	1.95	3.95	7.9	15.75

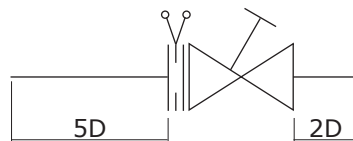
Size	1 1/2"	2"
K_{Vs}	21.5	46.7

K_{Vs} Values

Fixed orifice double regulating valves must always be installed with a minimum of 5 pipe diameters of straight pipe, without intrusion, upstream of the orifice plate.

Downstream of the valve a minimum of 2 pipe diameters of straight pipe are required.

Installation



Under the Pressure Equipment Directive (PED) these fixed orifice double regulating valves have been specified for Group 2 Liquids i.e. non-hazardous

Sizes 1/2" to 2" are classified as SEP

PED Categorisation

Herz Valves UK Ltd.

Progress House, Moorfield Point, Moorfield Road
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Technical Data

Once the required flow rate has been calculated, the size of the fixed orifice double regulating valve can be determined based on the following:

The minimum signal at the design flow rate of 1 kPa.

For minimum pressure loss, a maximum signal of 4.7 kPa, which corresponds to the maximum differential pressure range of a fluorocarbon manometer.

Sizing

The pressure loss across the fixed orifice double regulating valve is the combined loss attributable to the orifice plate and double regulating valve.

The double regulating valve shall not be used less than 25% open.

Pressure Loss

Position Open	1/2" LF	1/2" MF	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
1	0.07	0.30	0.60	0.63	1.04			
1.5	0.14	0.42	0.81	1.2	1.9	2.2	4.8	
2	0.22	0.53	1.0	1.7	3.1	3.5	6.3	8.7
2.5	0.29	0.66	1.2	2.25	4.2	4.65	7.9	10.8
3	0.35	0.78	1.42	2.8	5.0	5.9	9.5	13.0
3.5	0.41	0.86	1.8	3.25	5.8	7.25	11.2	15.3
4	0.46	0.88	2.0	3.6	6.5	8.85	13.0	18.0
4.5						9.9	14.7	20.2
5						11.4	16.25	22.5
5.5						12.5	17.4	25.0
6						13.3	18.5	26.7
6.5								28.6
7								30.3
7.5								31.9
8								33.0

K_v Values

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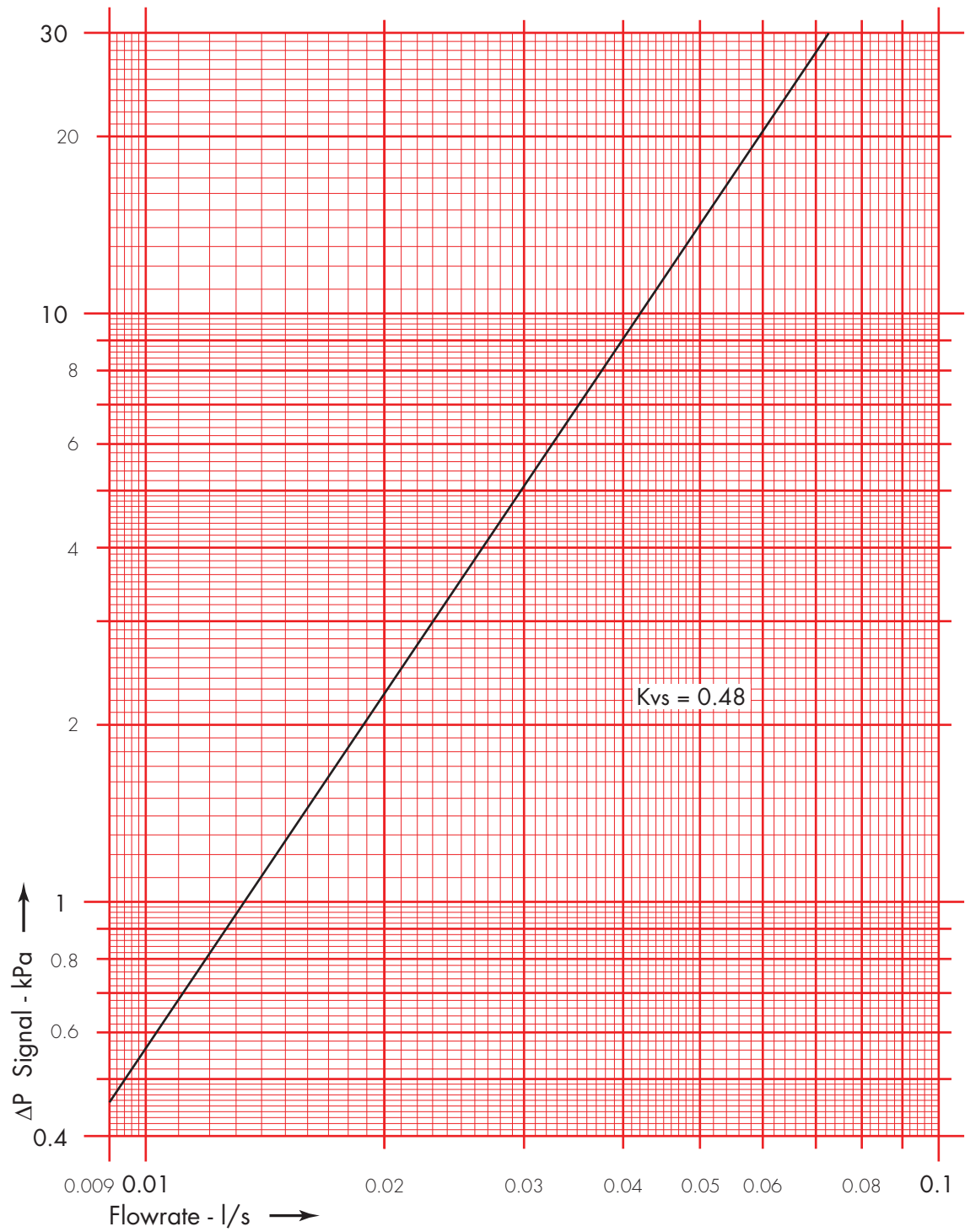
Progress House, Moorfield Point, Moorfield Road
Slyfield Ind Estate, Guildford, Surrey GU1 1RU

Tel: 01483 502211
Fax: 01483 502025

e-mail: sales@herzvalves.com
Website: www.herzvalves.com



HERZ - Flow data - flow signal	Fixed Orifice Double Regulating Valve
Art. 4017 - 11	Dim. 1/2" LF



We reserve the right to make design modifications

HERZ Valves UK Ltd.
 Progress House, Moorfield Point, Moorfield Road
 Slyfield Ind Estate, Guildford, Surrey GU1 1RU
 Tel: 01483 502211 e-mail: sales@herzvalves.com
 Fax: 01483 502025 Website: www.herzvalves.com



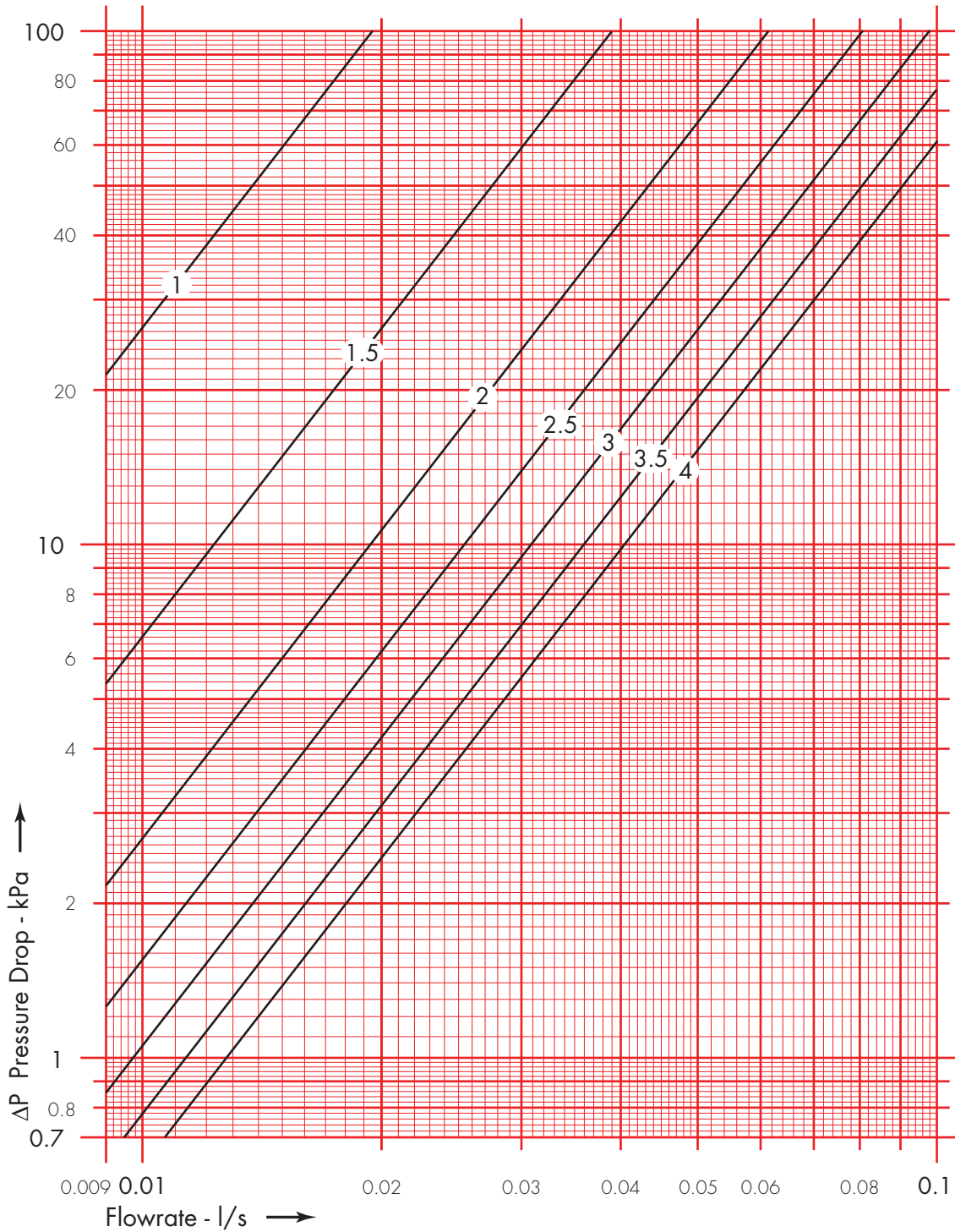
HERZ - Flow data - pressure drop

Fixed Orifice Double Regulating Valve

Art. **4017** - 11

Dim. 1/2" LF

Position	1	1.5	2	2.5	3	3.5	4
Kv	0.07	0.14	0.22	0.29	0.35	0.41	0.46



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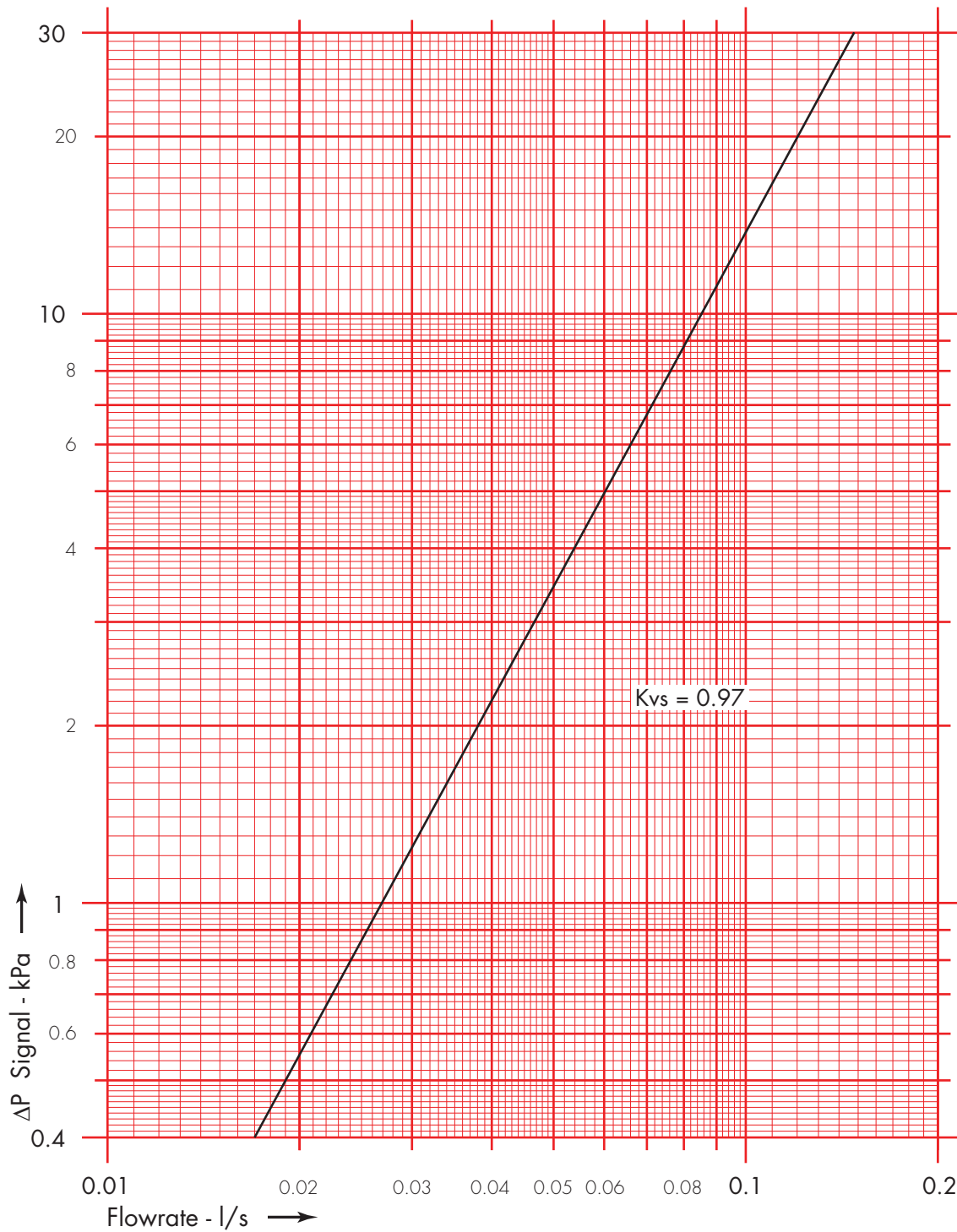
Progress House, Moorfield Point, Moorfield Road
Slyfield Ind Estate, Guildford, Surrey GU1 1RU

Tel: 01483 502211 e-mail: sales@herzvalves.com

Fax: 01483 502025 Website: www.herzvalves.com



HERZ - Flow data - flow signal	Fixed Orifice Double Regulating Valve
Art. 4017 - 21	Dim. 1/2" MF



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Fax: 01483 502025 Website: www.herzvalves.com



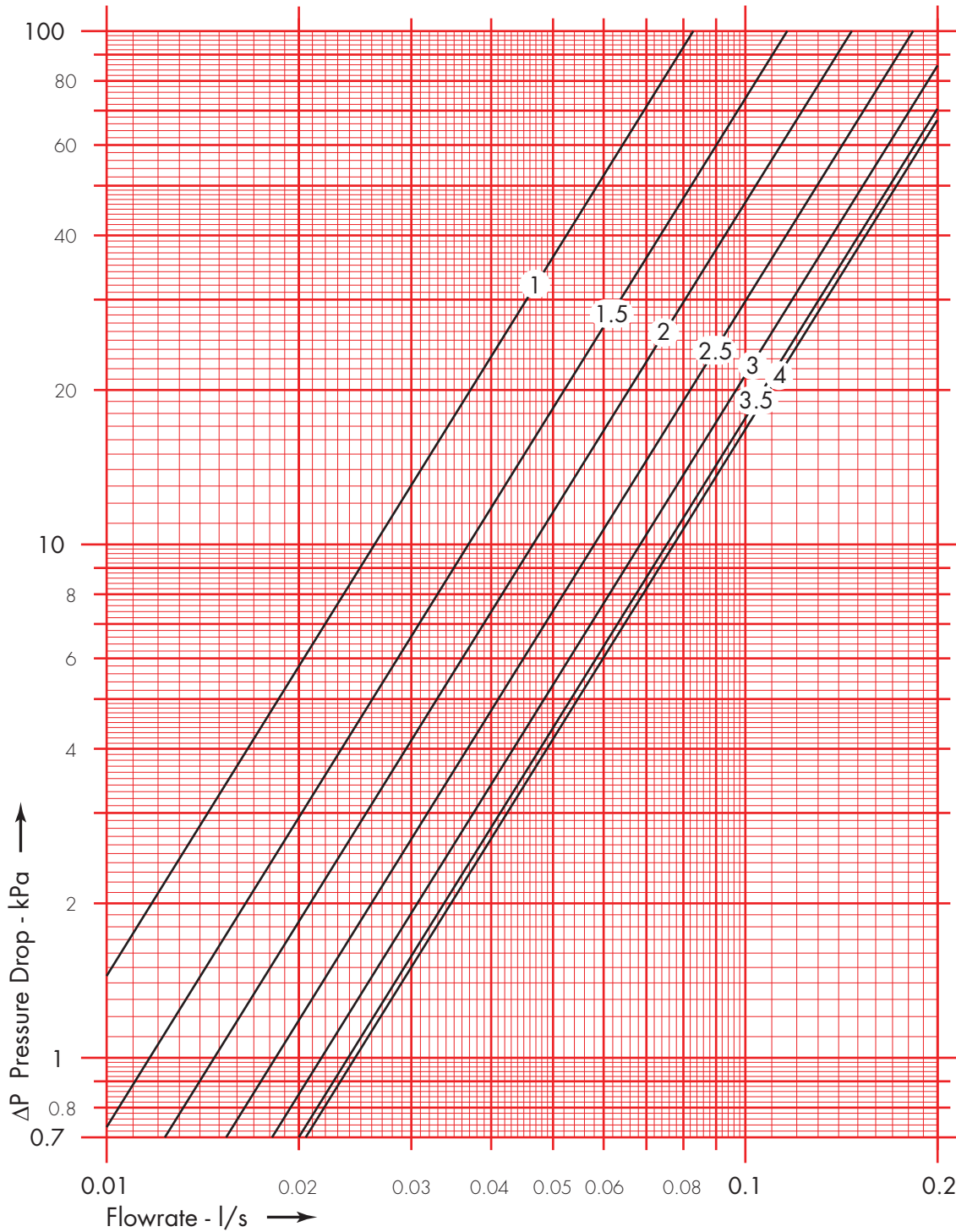
HERZ - Flow data - pressure drop

Fixed Orifice Double Regulating Valve

Art. **4017** - 21

Dim. 1/2" MF

Position	1	1.5	2	2.5	3	3.5	4
Kv	0.30	0.42	0.53	0.66	0.78	0.86	0.88



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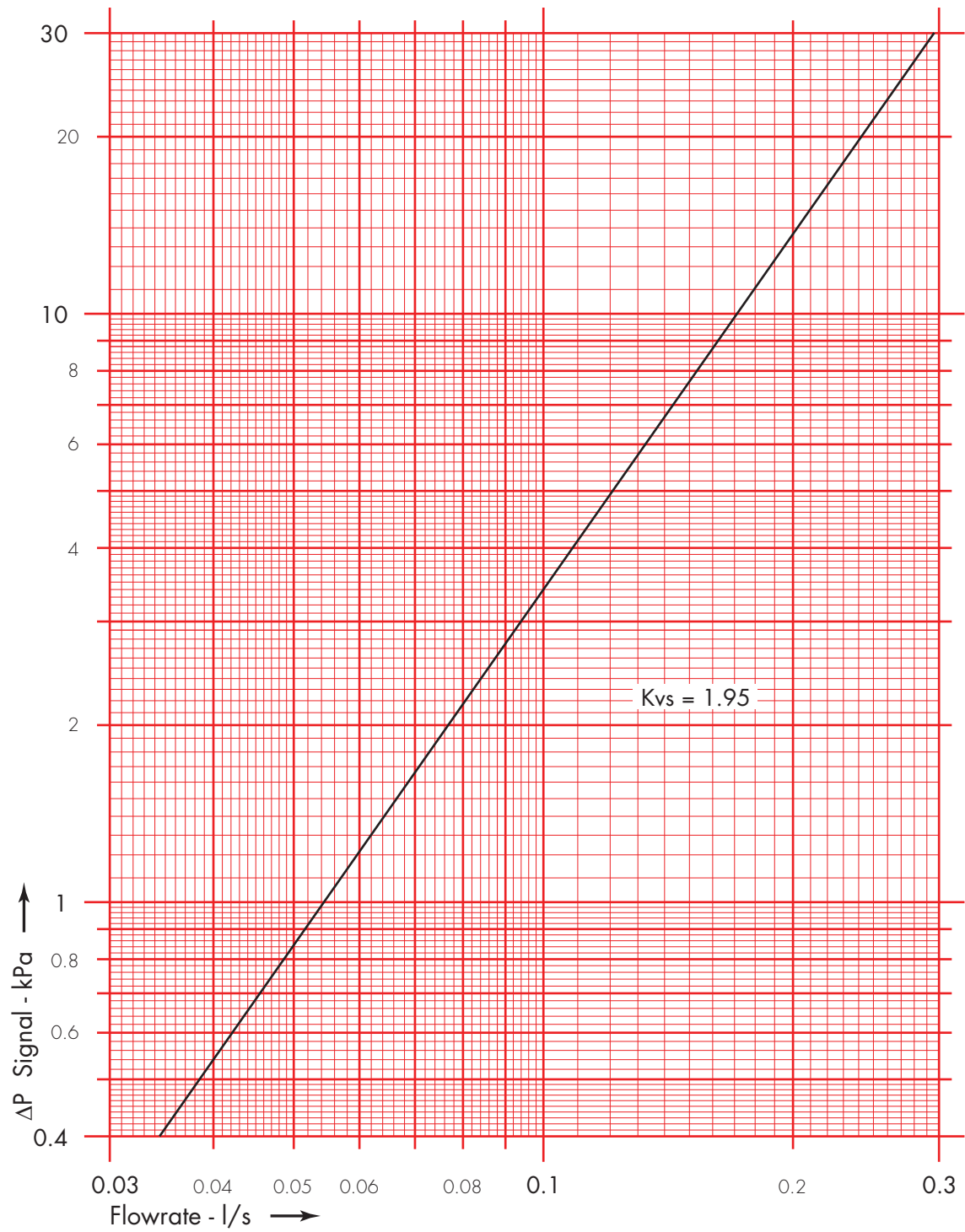
Progress House, Moorfield Point, Moorfield Road
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HERZ - Flow data - flow signal	Fixed Orifice Double Regulating Valve
Art. 4017 - 01	Dim. 1/2"



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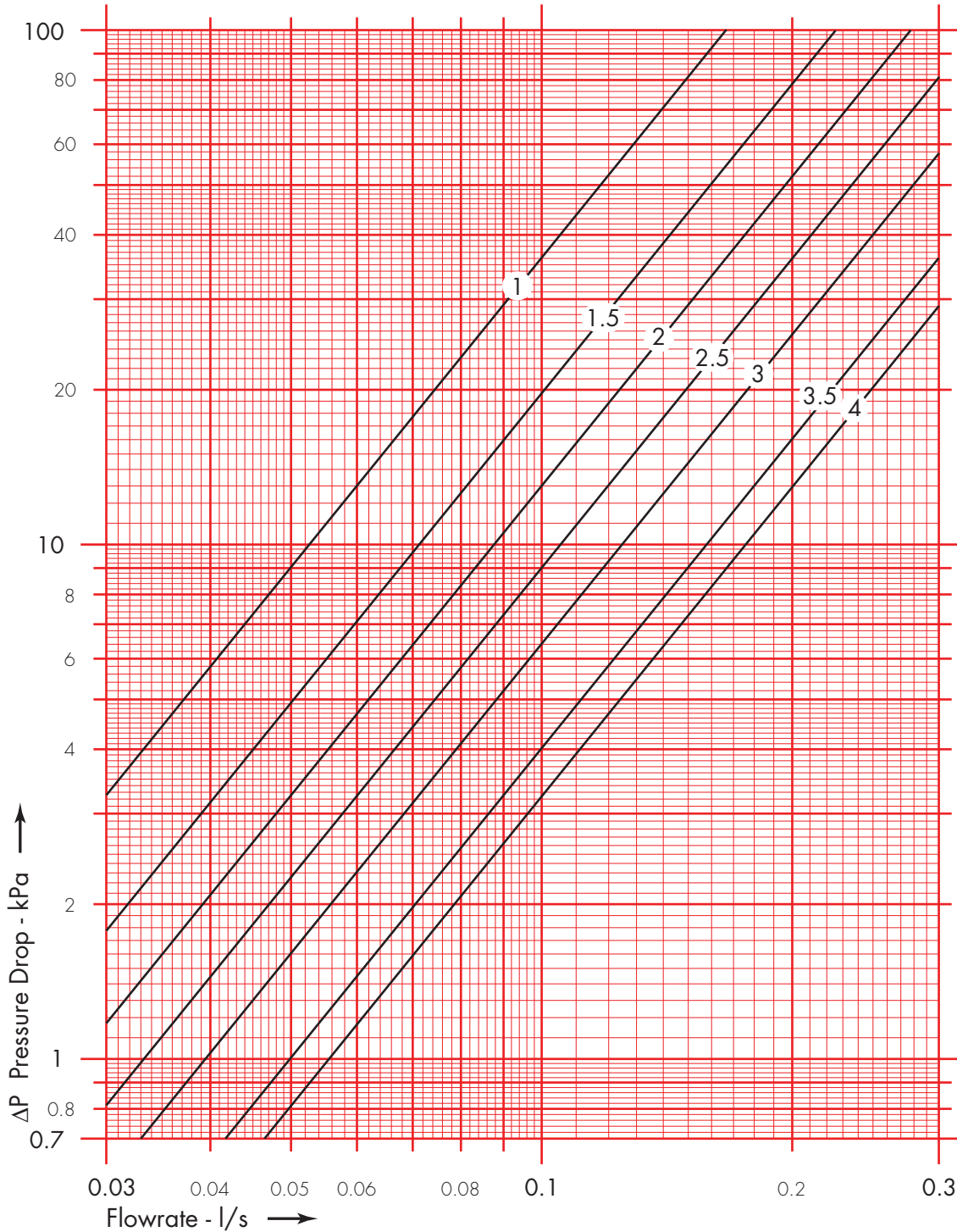
HERZ - Flow data - pressure drop

Fixed Orifice Double Regulating Valve

Art. **4017** - 01

Dim. 1/2"

Position	1	1.5	2	2.5	3	3.5	4
Kv	0.60	0.81	1.0	1.2	1.42	1.8	2.0



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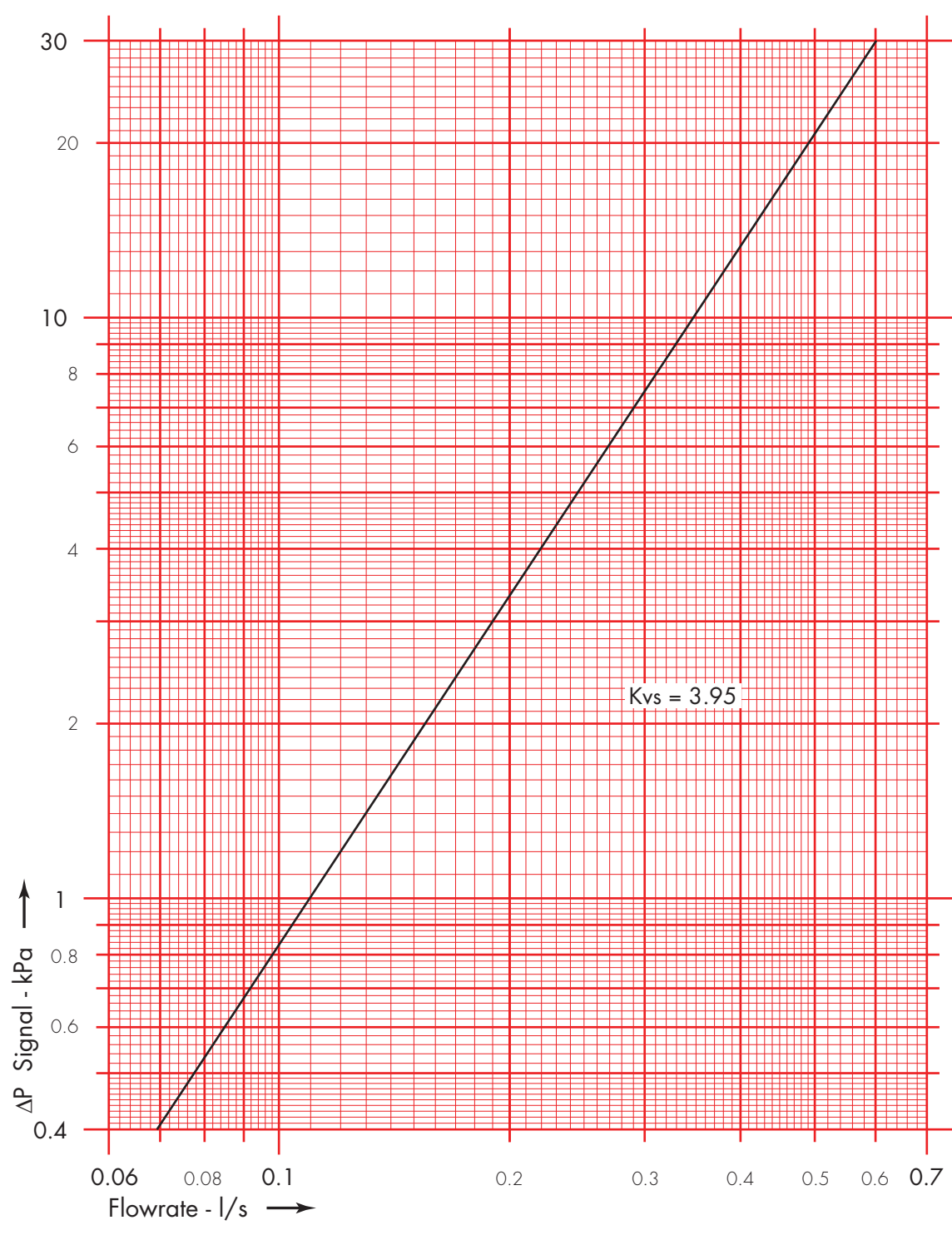
Progress House, Moorfield Point, Moorfield Road
Slyfield Ind Estate, Guildford, Surrey GU1 1RU

Tel: 01483 502211 e-mail: sales@herzvalves.com

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HERZ - Flow data - flow signal	Fixed Orifice Double Regulating Valve
Art. 4017 - 02	Dim. 3/4"



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HERZ Valves UK Ltd.
 Progress House, Moorfield Point, Moorfield Road
 Slyfield Ind Estate, Guildford, Surrey GU1 1RU
 Tel: 01483 502211 e-mail: sales@herzvalves.com
 Fax: 01483 502025 Website: www.herzvalves.com



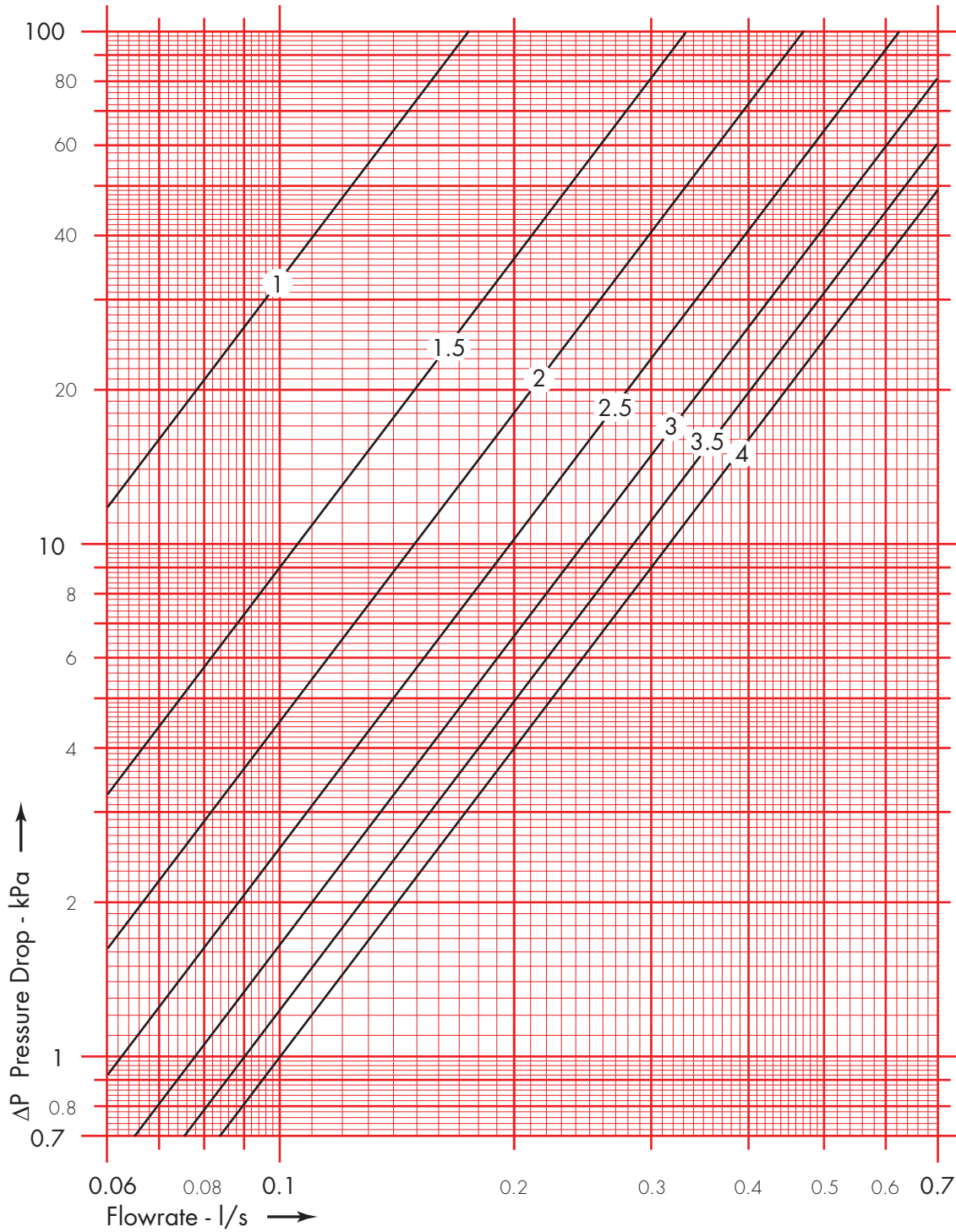
HERZ - Flow data - pressure drop

Fixed Orifice Double Regulating Valve

Art. **4017** - 02

Dim. 3/4"

Position	1	1.5	2	2.5	3	3.5	4
Kv	0.63	1.2	1.7	2.25	2.8	3.25	3.6



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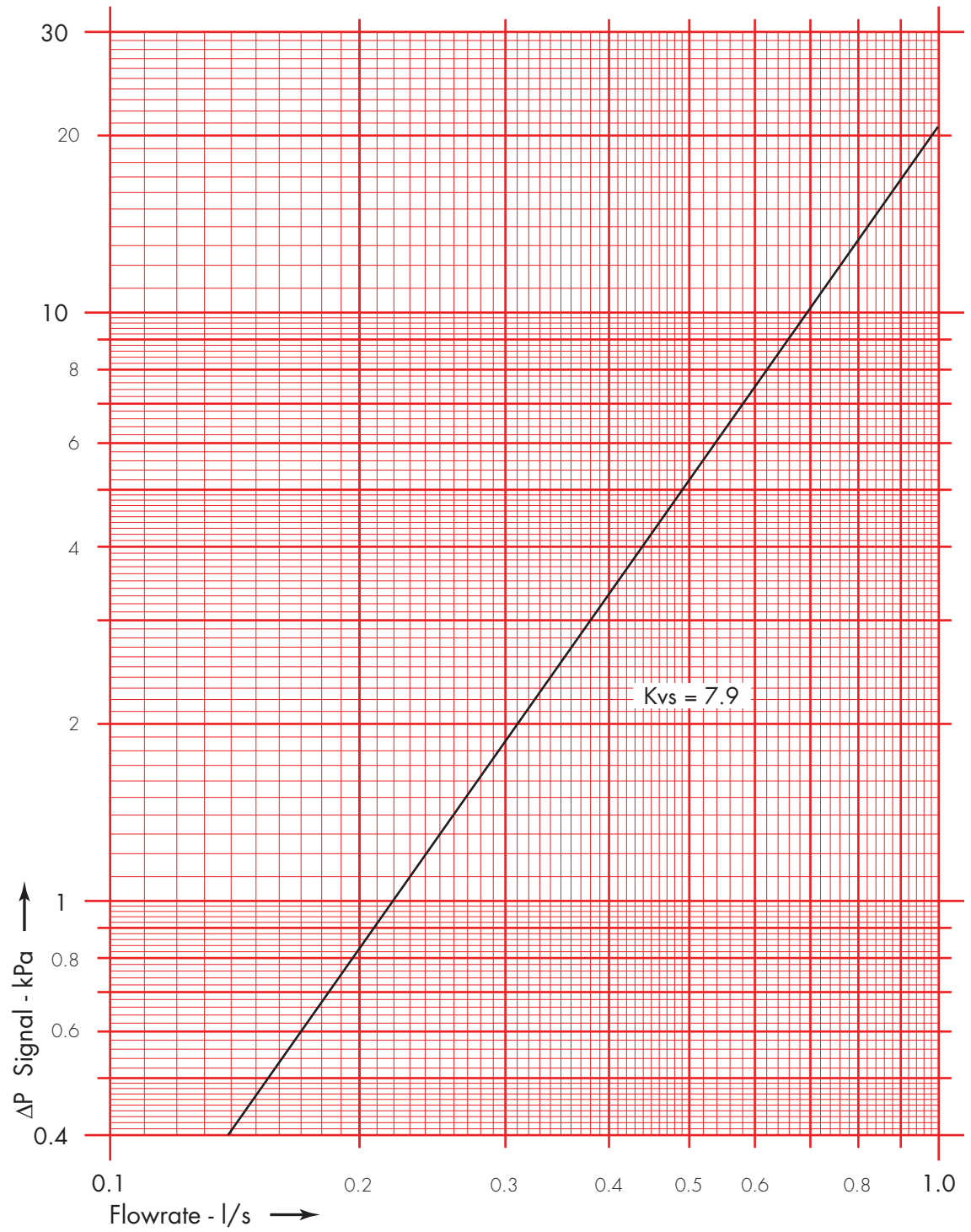
Progress House, Moorfield Point, Moorfield Road
Slyfield Ind Estate, Guildford, Surrey GU1 1RU

Tel: 01483 502211 e-mail: sales@herzvalves.com

Fax: 01483 502025 Website: www.herzvalves.com



HERZ - Flow data - flow signal	Fixed Orifice Double Regulating Valve
Art. 4017 - 03	Dim. 1"



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HERZ Valves UK Ltd.
 Progress House, Moorfield Point, Moorfield Road
 Slyfield Ind Estate, Guildford, Surrey GU1 1RU
 Tel: 01483 502211 e-mail: sales@herzvalves.com
 Fax: 01483 502025 Website: www.herzvalves.com



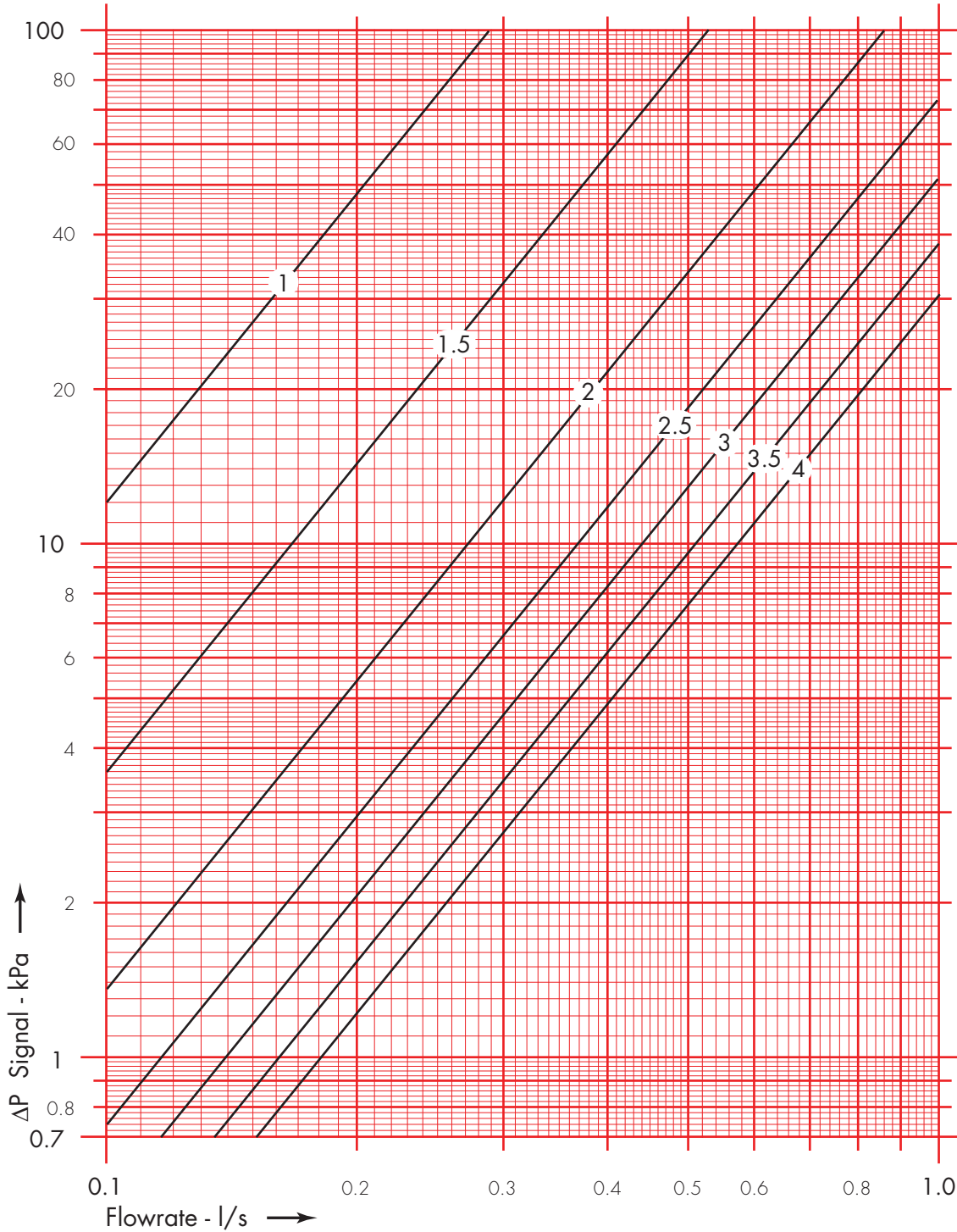
HERZ - Flow data - pressure drop

Fixed Orifice Double Regulating Valve

Art. **4017** - 03

Dim. 1"

Position	1	1.5	2	2.5	3	3.5	4
Kv	1.04	1.9	3.1	4.2	5.0	5.8	6.5



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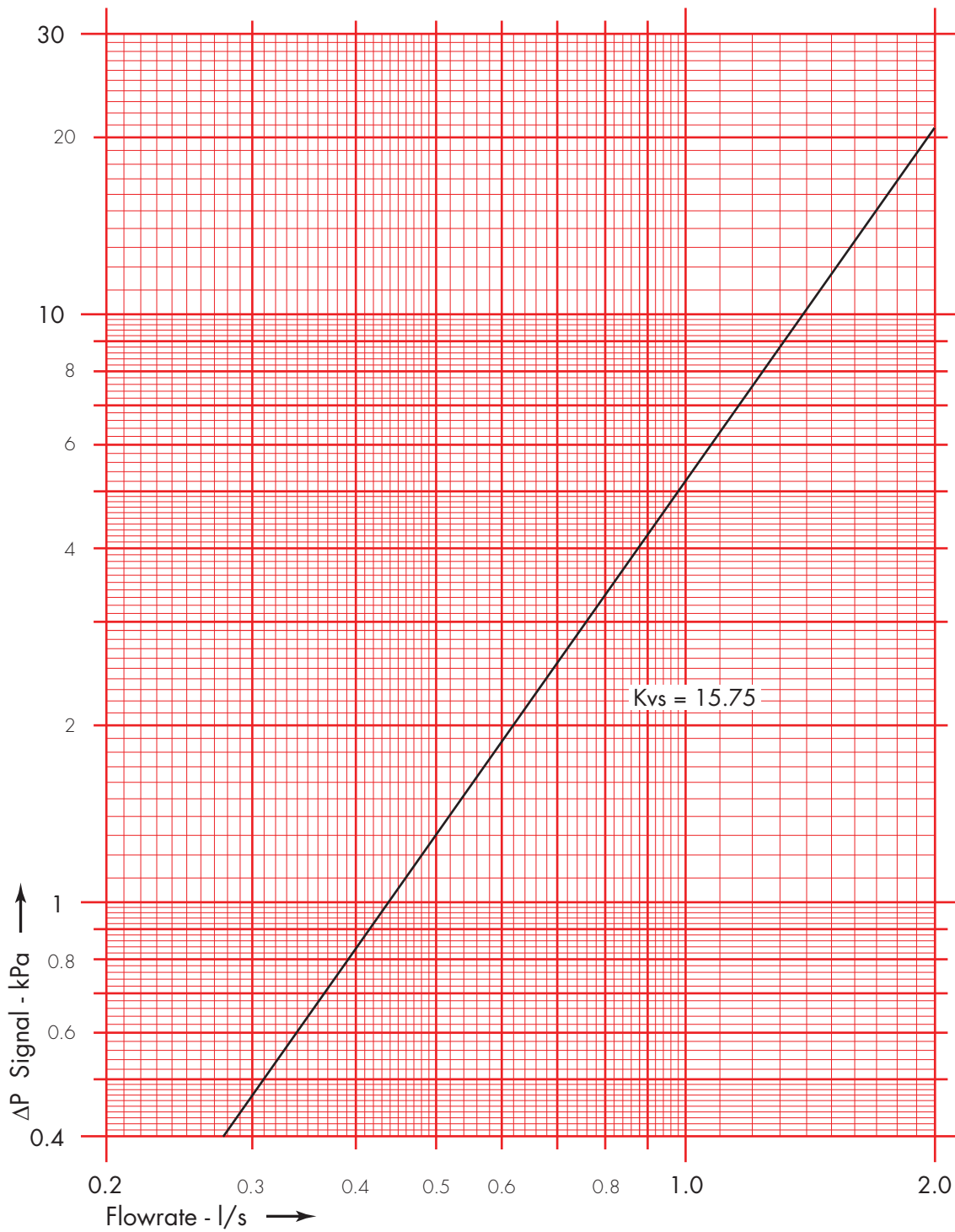
Progress House, Moorfield Point, Moorfield Road
Slyfield Ind Estate, Guildford, Surrey GU1 1RU

Tel: 01483 502211 e-mail: sales@herzvalves.com

Fax: 01483 502025 Website: www.herzvalves.com



HERZ - Flow data - flow signal	Fixed Orifice Double Regulating Valve
Art. 4017 - 04	Dim. 1 1/4"



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HERZ Valves UK Ltd.

Progress House, Moorfield Point, Moorfield Road
Slyfield Ind Estate, Guildford, Surrey GU1 1RU

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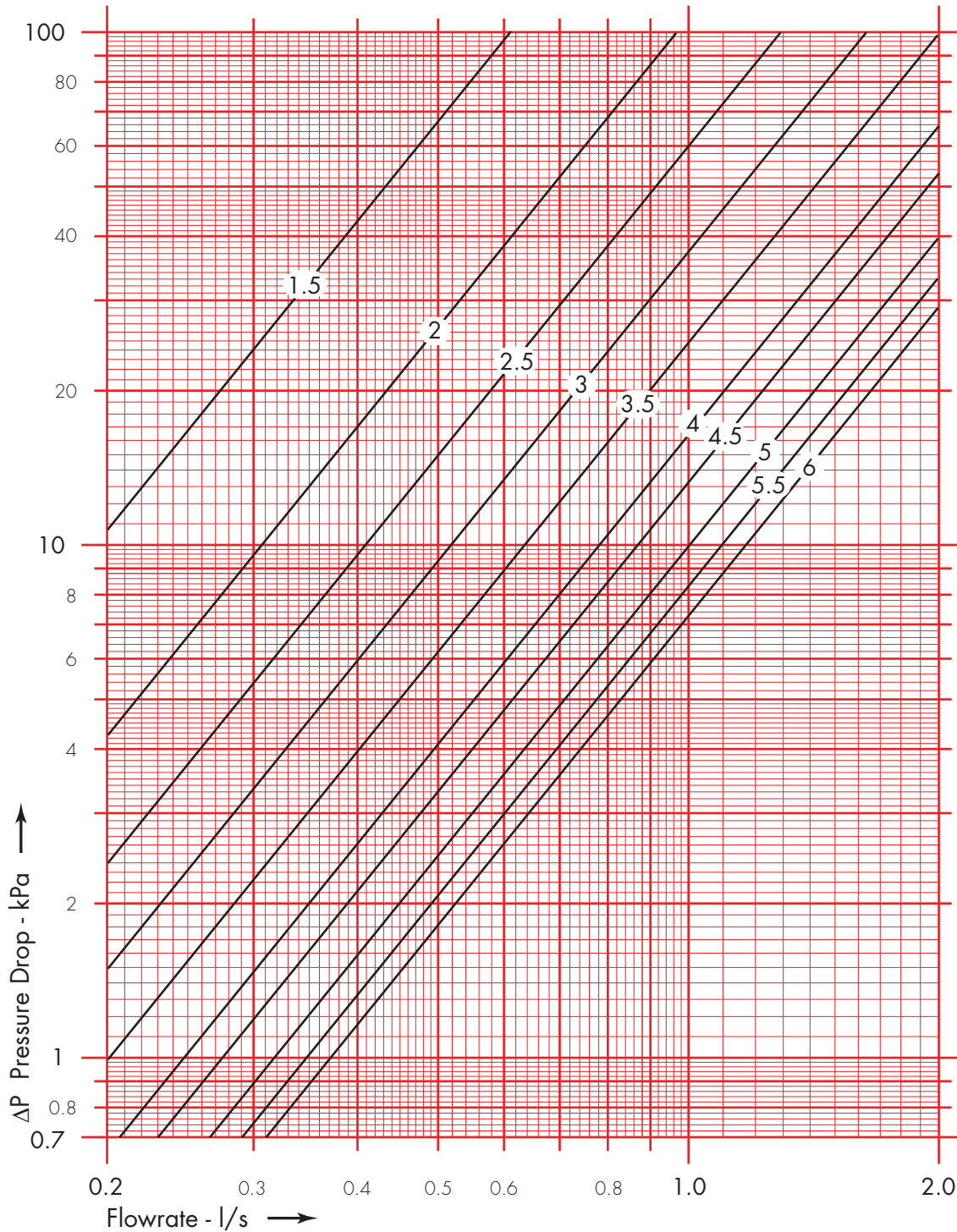
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Fixed Orifice Double Regulating Valve

Art. **4017** - 04

Dim. 1 1/4"

Position	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Kv	2.2	3.5	4.65	5.9	7.25	8.85	9.9	11.4	12.5	13.3



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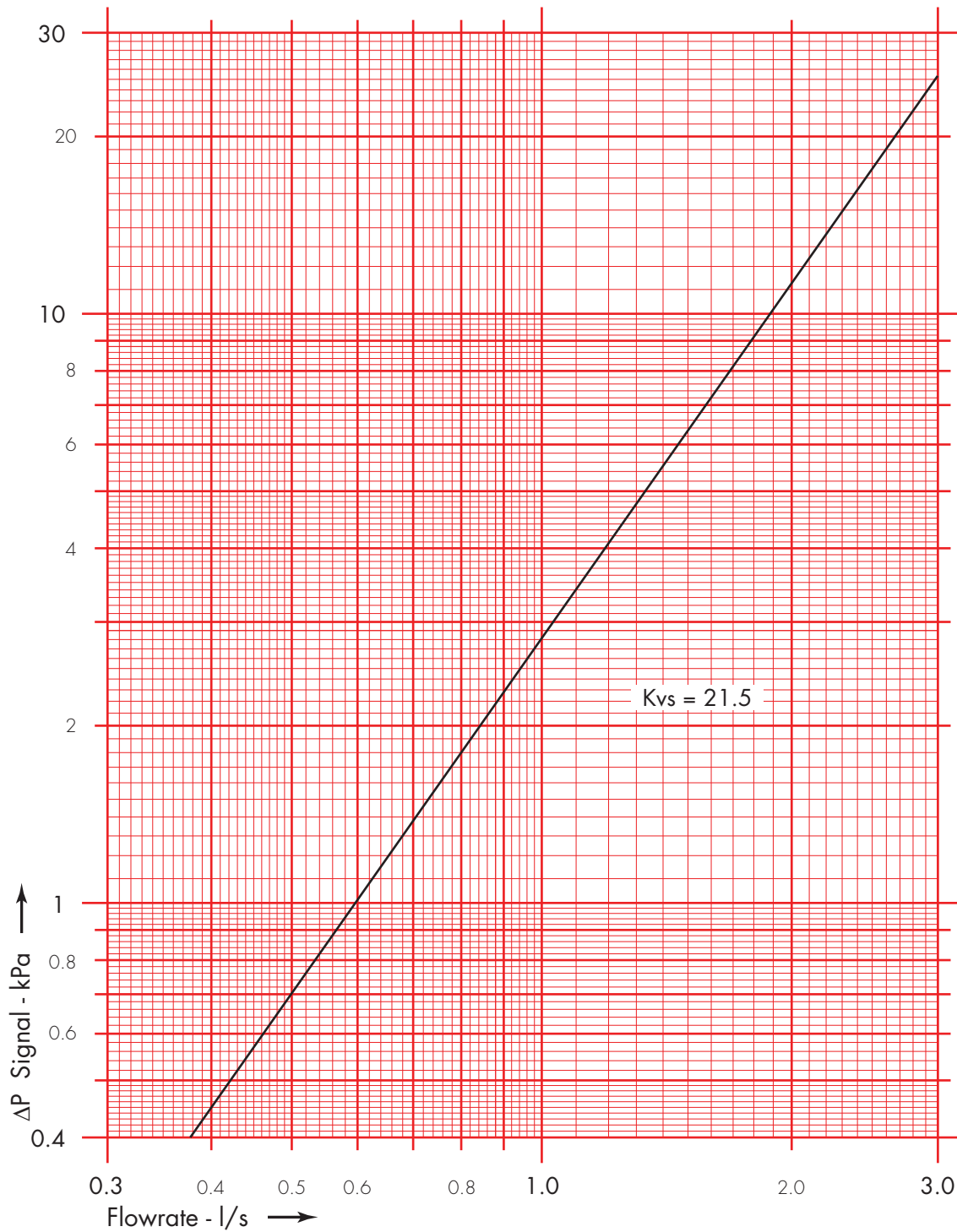
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Slyfield Ind Estate, Guildford, Surrey GU1 1RU

Tel: 01483 502211 e-mail: sales@herzvalves.com

Fax: 01483 502025 Website: www.herzvalves.com



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Art. 4017 - 05	Dim. 1 1/2"



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Slyfield Ind Estate, Guildford, Surrey GU1 1RU

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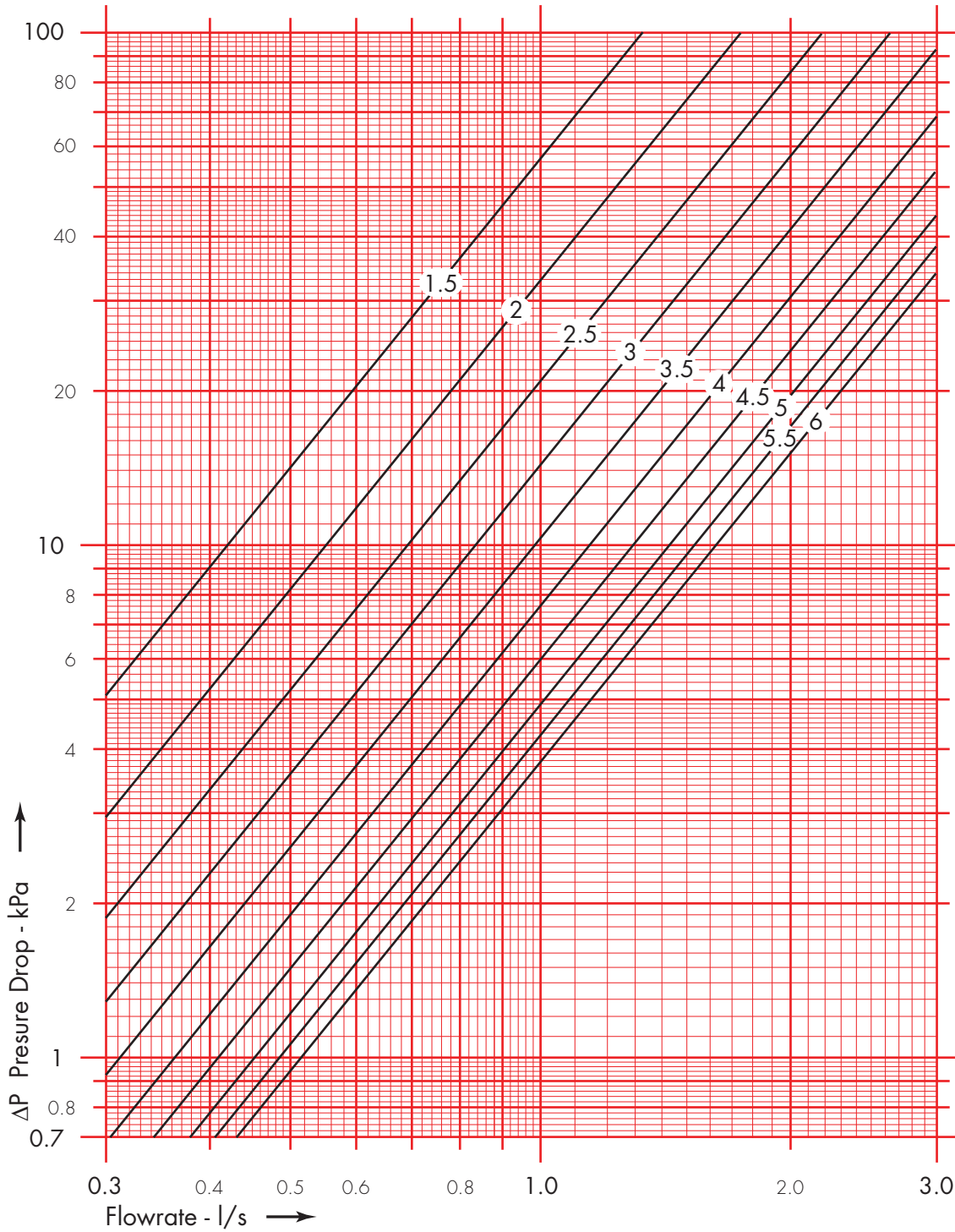
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Fixed Orifice Double Regulating Valve

Art. **4017** - 05

Dim. 1 1/2"

Position	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Kv	4.8	6.3	7.9	9.5	11.2	13.0	14.7	16.3	17.4	18.5



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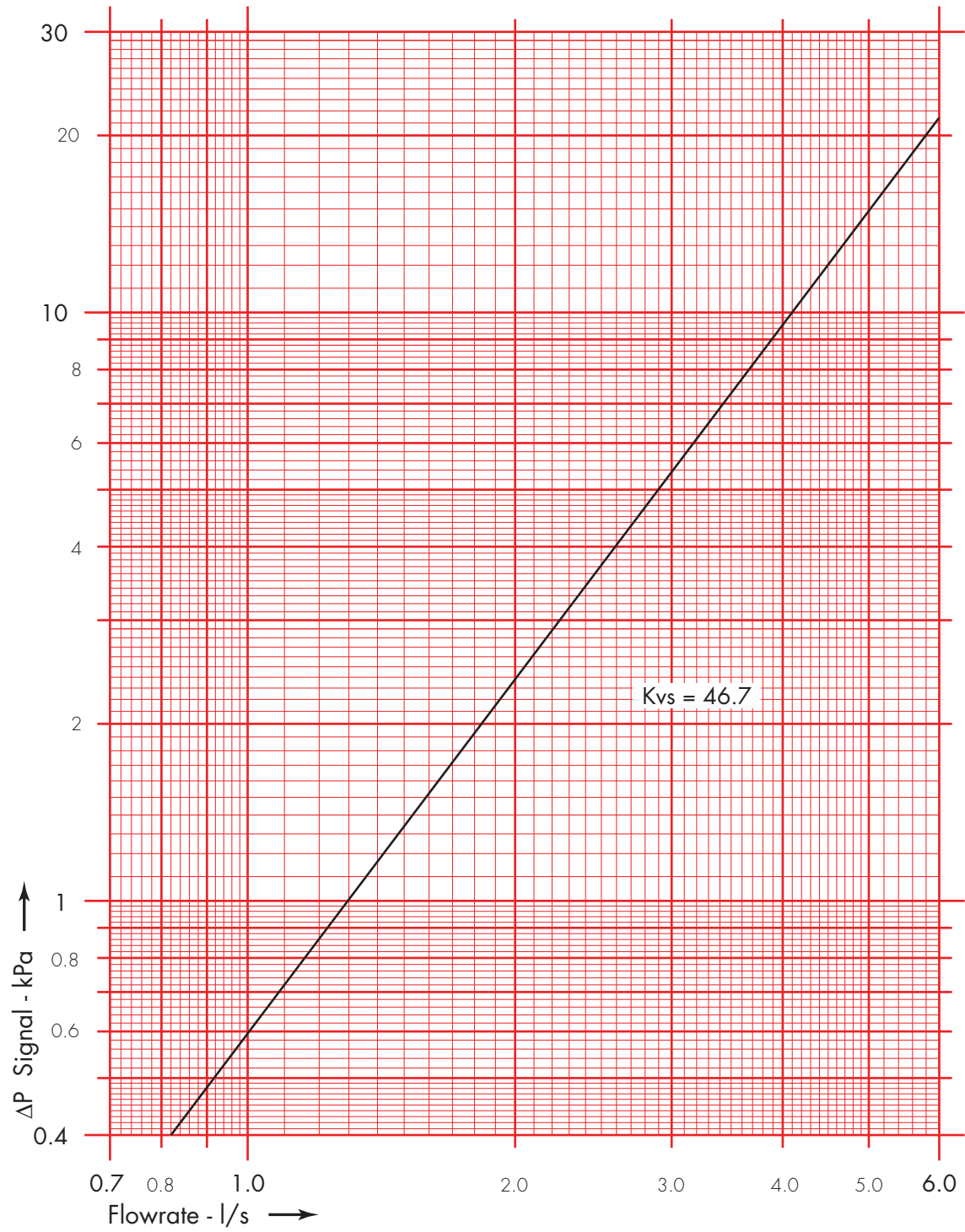
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Slyfield Ind Estate, Guildford, Surrey GU1 1RU

Tel: 01483 502211 e-mail: sales@herzvalves.com

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HERZ - Flow data - flow signal	Fixed Orifice Double Regulating Valve
Art. 4017 - 06	Dim. 2"



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HERZ Valves UK Ltd.
 Progress House, Moorfield Point, Moorfield Road
 Slyfield Ind Estate, Guildford, Surrey GU1 1RU
 Tel: 01483 502211 e-mail: sales@herzvalves.com
 Fax: 01483 502025 Website: www.herzvalves.com



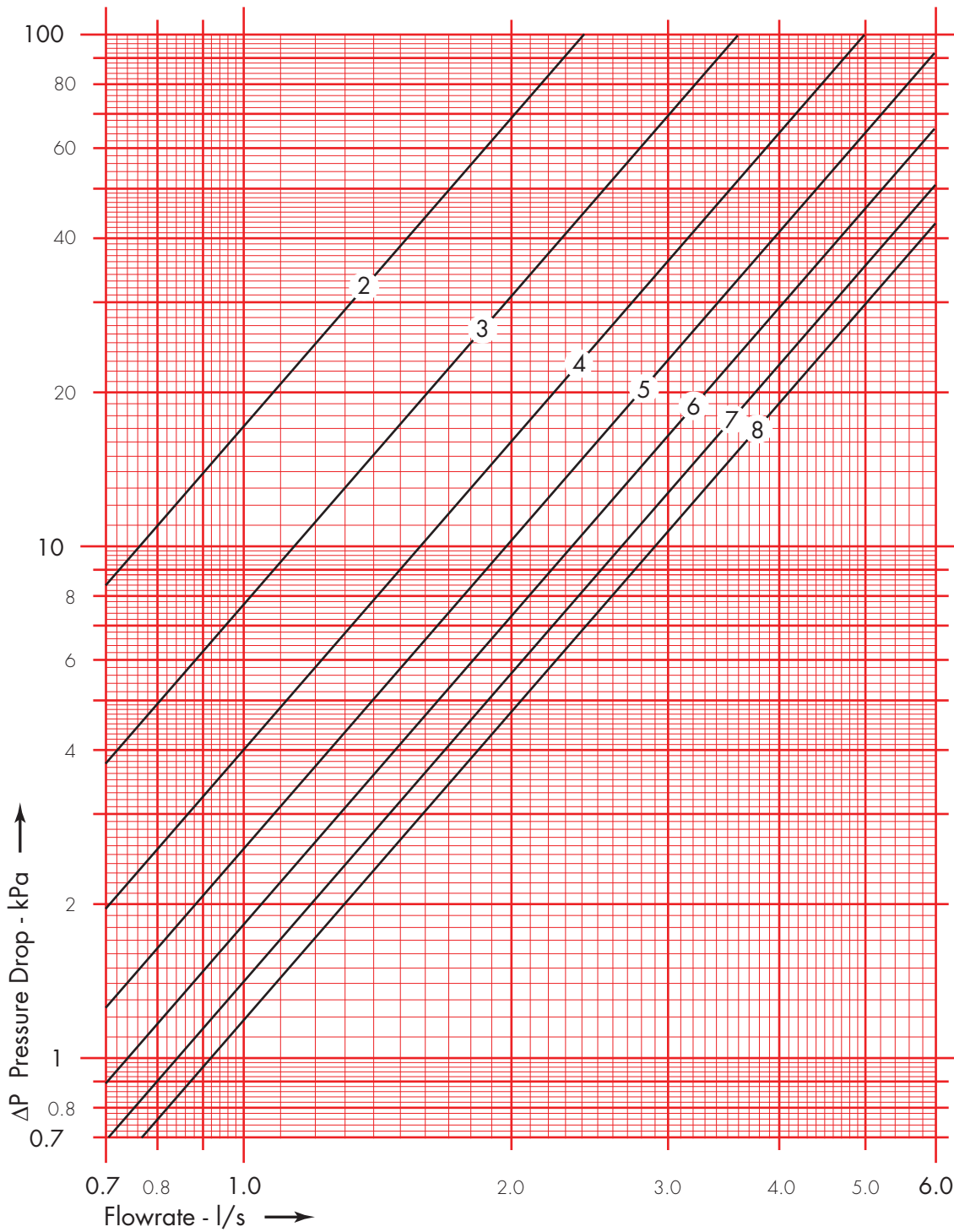
HERZ - Flow data - pressure drop

Fixed Orifice Double Regulating Valve

Art. **4017** - 06

Dim. 2"

Position	2	3	4	5	6	7	8
Kv	8.7	13.0	18.0	22.5	26.7	30.3	33.0



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