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Elasto-Fluid Shock Absorbers

WES 1

Deceleration Technology

www.weforma.com

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Benefits

Damping medium	High-viscosity elastomer
Energy absorption	Max. 1.000.000 Nm
Surface protection	Pressure tube zinc plated / Housing painted
Deceleration	Progressive, customer specific
Temperature	-10ºC - +60ºC
RoHS compliant	Directive 2002/95/EG
Applications	Sluices, Flight simulators, Metal industry

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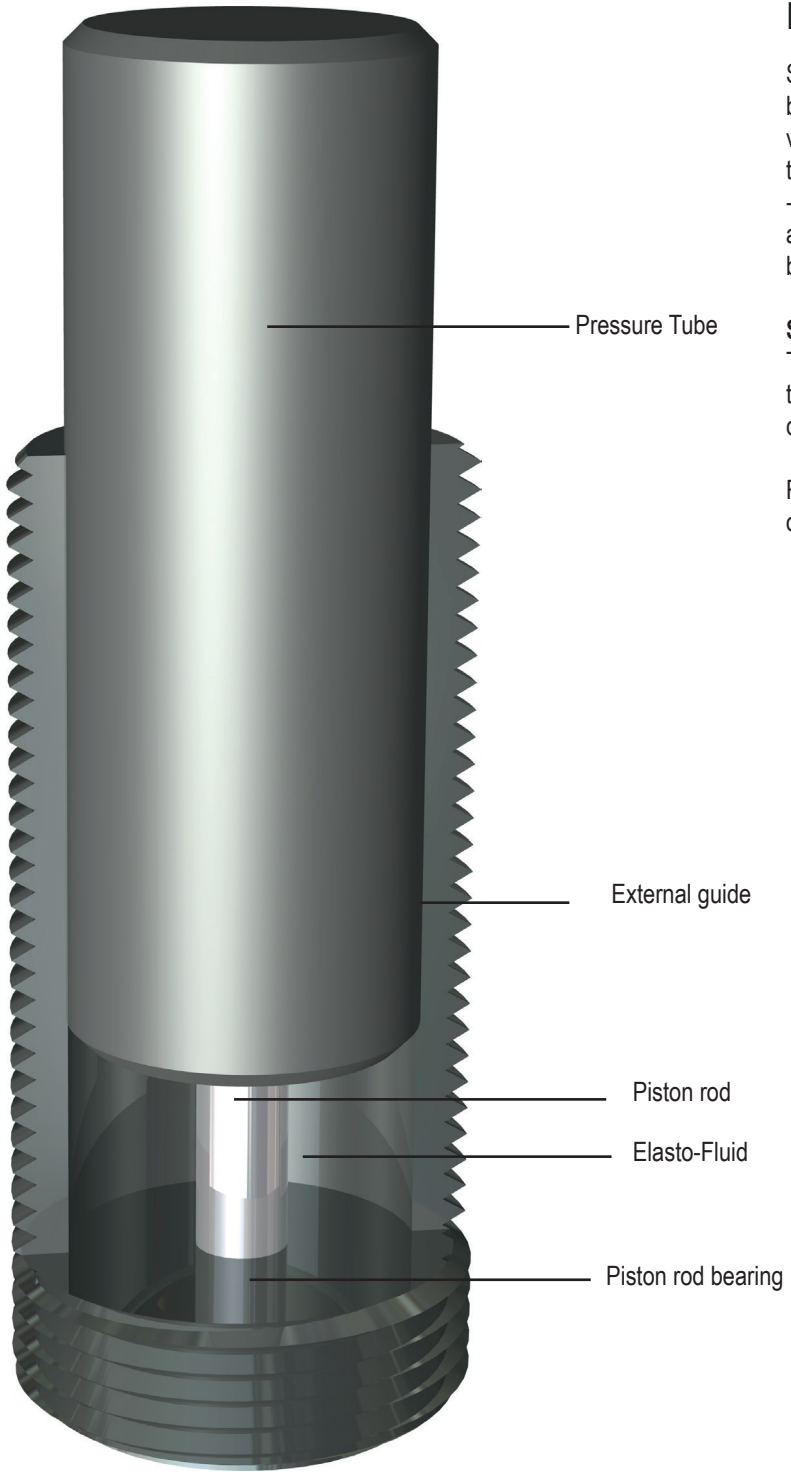
Operating Principle



Function

Shock absorbers of series WES have been developed based on the principle of the hydrostatic compression of visco-elastic fluids. Two characteristics are taken advantage of: compressibility and viscosity
- this means that in a product the dual function of a shock absorber and a spring can be used or each function can be used separately.

Shock absorber:
The weight is cushioned by the fluid friction in the throttling port of the piston head and/or in the annular clearance between piston and reservoir.

Resetting of the piston rod is effected by the slackening of the compressed visco-elastic fluid.

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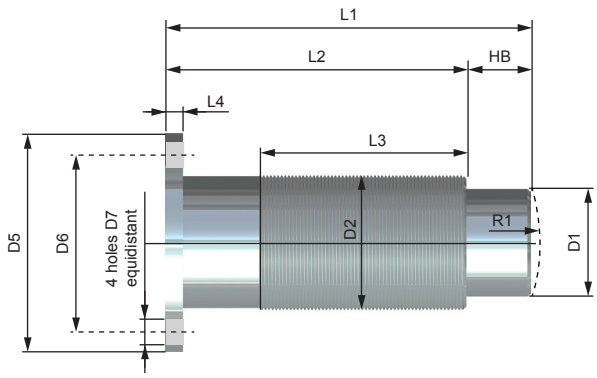
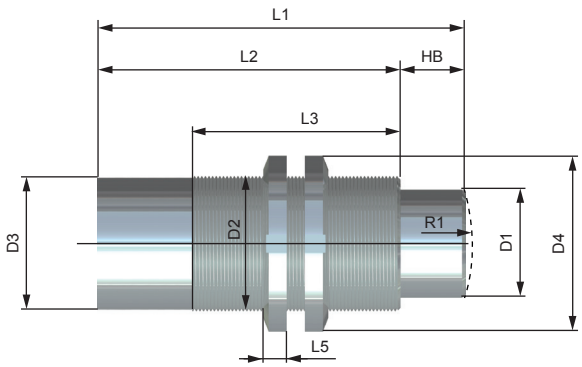
WES with Flange: F



WES with lock nuts: Standard



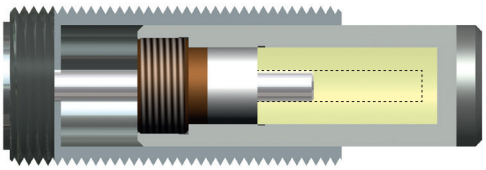
DIMENSIONS

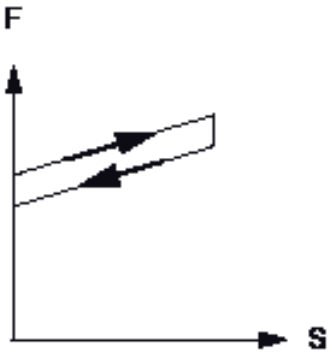
	L1	L2	L3	L4	L5	R1	Ø D1	D2	Ø D3	Ø D4	Ø D5	Ø D6	Ø D7
	xxa	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
WES-1-25	75	53	52	10	7	-	19	M25x1,5	20	38	57	41	7
WES-1-35	120	98	96	12	8	-	25	M35x1,5	32	52	80	60	9
WES-1-40	120	98	96	-	9	-	25	M40x1,5	32	56	-	-	-
WES-1-50-1	175	140	138	12	11	-	38	M50x1,5	45	70	90	70	9
WES-1-50-2	175	140	138	12	11	-	38	M50x1,5	45	70	106	85	11
WES-1-60	175	140	138	-	11	-	38	M60x2	45	81	-	-	-
WES-1-75	213	168	158	10	13	R.130	60	M75x2	72	98	122	100	11
WES-1-90	270	210	130	12	16	R.150	74,5	M90x2	90	120	150	120	13
WES-1-110	337	257	145	14	19	R.350	90	M110x2	110	145	175	143	18

PERFORMANCE

	Thread	Stoke	Energy absorption		Counterforce		V
		mm	kNm	kNm / h	FG min kN	FG max kN	max m/s
WES-1-25	M 25x1,5	12	0,1	2,5	0,94	5,4	2
WES-1-35	M 35x1,5	22	0,43	10,75	2,5	14,0	4
WES-1-40	M 40x1,5	22	0,43	10,75	2,5	14,0	5
WES-1-50-1 / WES-1-50-2	M 50x1,5	35	1,5	37,5	5,2	28,8	5
WES-1-60	M 60x2	35	1,5	37,5	5,2	28,8	5
WES-1-75	M 75x2	45	3,4	85	7,8	43,0	5
WES-1-90	M 90x2	60	7	175	13,6	76,6	5
WES-1-110	M 110x2	80	14	350	19,0	130,0	5

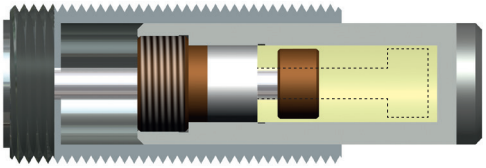
Pre-stressed elasto-fluid spring

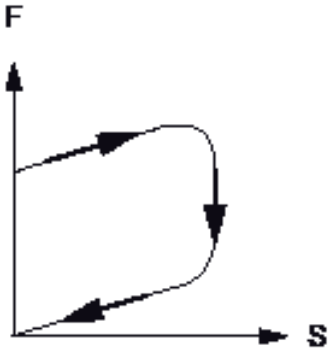




$F = F0 + KS$

Pre-stressed elasto-fluid damper and spring





$F = F0 + KS + CV^x$
$x: 0,1 < x < 0,2$

Shock absorber without resetting

$F = CV^x$
$x: 0,1 < x < 0,4$

F0	Static prestrain
K	Static rigidity
S	Stroke
C: kN $(m/s)^x$	Velocity coefficient
V	Velocity
X	0,1 to 0,4

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Important information

Attention!

Before Installation, commissioning, servicing and repair the date sheet is to be noticed. Realisation of the works only by trained, introduced specialist staff.

Electric connections according to the suitable national regulation.
for Germany: VDE regulation VD E0100

Before all repair, and servicing works the energy supplies (main switch, etc.) are to be switched off! More over, measures are necessary, around unintentional Reconnect to prevent, e.g., in the main switch a suitable warning „servicing works“, „repair works“ etc. attach.

Designated use

Check before installation and use whether the type name on the damper or on the packaging with the suitable name on the delivery note agrees
Industrial shock absorbers are maintenance-free and ready with installation

- Moved masses can start with the installation of the shock absorbers by unintentional for injuries and body damages lead. Moved masses gainst unintentional procedure protect.
- The dampers can be inexpedient for the application and show no sufficient damping effect. Before the installation check the suitable suitability of the shock absorbers
- At the company beyond the allowed temperature area the damper can lose his function. To temperature area absolutely keep. Shock absorbers because of the warm radiotherapy do not varnish
- Fluide, gases and dirty particle in the surroundings can attack the poetry system of the shock absorber or destroy and lead to the functional financial loss of the shock absorber. Piston rod and poetry system against outside funds in the surroundings protect or isolate.
- Damages of the piston rod surface can destroy the poetry system. Piston rod are not greasy, oil etc. and before dirty particles protect.
- The piston rod can be torn out from the damper. The piston rod do not load on train tension
- Shock absorber can break off in demand. The connection construction always lay out in such a way that the at most appearing forces with sufficient security can be recorded. The maximum supporting forces performed in the calculation programme can deviate from the later really appearing supporting forces, because these are based on theoretical values.
- A setting of the shock absorbers to the respective application is necessary compelling. A wrong setting of the damping leads to a raised machine charge and to an untimely financial loss of the shock absorber

Liability

Due to the number of possible uses of our products and the conditions of use that lie outside of our scope of influence, we accept no liability as to whether the purchase object is suitable for the Client‘s intended purpose. The verification to this effect, in particular the verification as to whether the purchase object is suitable for the planned use, is the responsibility of the Client alone, unless expressly agreed otherwise in writing.

For the reasons we accept no liability for the suitability of the purchase object for the purpose intended by the Client, except in cases of intent or gross negligence.

With damages, the not designated use and from high-handed, in these instructions do not originate to intended interventions, any guarantee and liability claim goes out towards the manufacturer.

Guarantee

By non-use of the original spare parts the guarantee claim goes out.

Environment protection

By the exchange from damaged parts is to be respected to a proper disposal.