



ITT



Shock and Vibration Products

Non-Adjustable Mid-Bore series



Engineered for life

ENIDINE



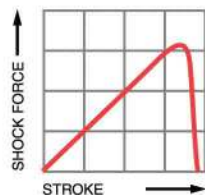
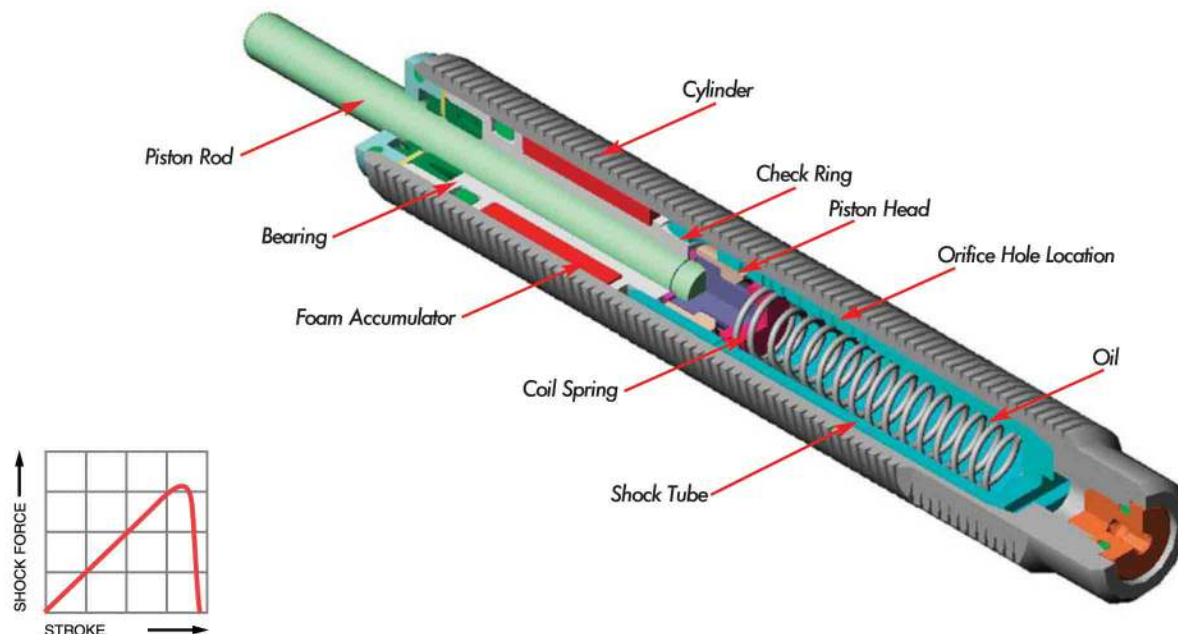
Enidine non-adjustable hydraulic shock absorbers can accommodate varying energy conditions. This family of tamperproof shock absorbers provides consistent performance, cycle after cycle. Non-adjustable models are designed to absorb maximum energy within a compact envelope size.

The **PM Series** uses a self-compensating design to provide energy absorption in low velocity and high drive force applications. The Platinum PM Series also includes the added benefit of corrosion-resistant, nickel-plated components and positive stop capabilities. Models can accommodate a wide range of operating conditions with varying masses or propelling forces.

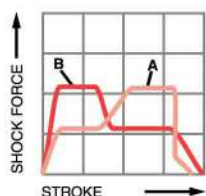
The Platinum **PRO Series** has unique progressive damping and a multi-orifice design that provides softer stops for medium-to-high impact velocities and fragile loads. The Platinum PRO Series also includes the added benefit of corrosion-resistant, nickel-plated components and positive stop capabilities. Models can accommodate a wide range of operating conditions.

Features and Benefits

- Extensive non-adjustable product line offers flexibility in both size and energy absorption capacity to fulfill a wide range of application requirements.
- Tamperproof design ensures repeatable performance.
- Special materials and finishes can be designed to meet specific customer requirements.
- Incorporating optional fluids and seal packages can expand the standard operating temperature range from (-10°C to 80°C) to (-30°C to 100°C).
- Threaded cylinders provide mounting flexibility and increase surface area for improved heat dissipation.
- A select variety of surface finishes maintains original quality appearance and provides the longest corrosion resistance protection.
- ISO quality standards result in reliable, long-life operation.



Progressive damping provides deceleration with a gradually increasing shock force. The initial minimal resistance at impact protects delicate loads and machinery from damage. Progressive damping shock absorbers also have built-in self-compensation, so they can operate over a wide range of weights and velocities. This type of damping provides smooth deceleration in applications where energy conditions may change.



Self-compensating damping maintains acceptable deceleration with conventional type damping characteristics. Self-compensating shock absorbers operate over a wide range of weights and velocities. These shock absorbers are well suited for high drive force, low velocity applications, and where energy conditions may change. Curve A shows the *shock force vs. stroke* curve of a self-compensating shock absorber impacted with a low velocity and high drive force. Curve B shows the *shock force vs. stroke* curve of a self-compensating shock absorber impacted with a high velocity and low drive force.

The design of a multi-orifice shock absorber features a double cylinder arrangement with space between the concentric shock tube and cylinder, and a series of orifice holes drilled down the length of the shock tube wall.

During piston movement, the check ring is seated and oil is forced through the orifices in the shock tube wall, into the closed cellular foam accumulator and behind the piston head.

As the piston head moves it closes off orifice holes, thus reducing the available orifice area in proportion to the velocity. After the load is removed the coil spring pushes the piston rod outward. This unseats the check ring and permits the oil to flow from the accumulator and across the piston head, back into the shock tube. This allows quick repositioning for the next impact.

Low Pressure multiple orifice shock absorbers can provide progressive or self-compensating damping, depending on the impact conditions.

Non-Adjustable Series Hydraulic Shock Absorbers

PM, PRO Series

Shock Absorbers

Example 1: Standard Products

10 **PRO 50** **MC - 2** **B**

Select quantity

Select catalog number

Select thread designation from engineering data chart (if applicable)

Select damping constant from appropriate sizing graph

Select piston rod type

- "-" (without button)
- "B" (with button)
- "CM" (Clevis mount)
- "CMS" (Clevis mount with spring)

Ordering Information/Application Worksheet

Example 2: Custom Orifice Products*

10 **PRO 100MF** **APPLICATION DATA**

Select quantity

Select catalog number

Specify:

- Vertical, rotary or horizontal motion
- Weight
- Impact velocity
- Propelling force (if any)
- Other (temperature or other environmental conditions)
- Cycles per hour

*Enidine will specify individual part number for each application.

Accessories

Example 1

10 **UF M10 x 1** Universal Mounting Flange
(P/N U16363189)

Select quantity

Select catalog/part number

Example 2

5 **UC 8609** Urethane Striker Cap
(P/N C98609079)

Select quantity

Select catalog/part number

Application Worksheet

FAX NO.: _____

DATE: _____

ATTN: _____

COMPANY: _____

The Enidine Application Worksheet makes shock absorber sizing and selection easier.

Fax, phone, or mail worksheet data to Enidine headquarters or your nearest Enidine subsidiary/affiliate or distributor. (See catalog back cover for Enidine locations, or visit www.enidine.eu for a list of Enidine distributors.)

Upon Enidine's receipt of this worksheet, you will receive a detailed analysis of your application and product recommendations. (For custom design projects, Enidine representatives will consult with you for specification requirements.)

GENERAL INFORMATION

CONTACT: _____

DEPT/TITLE: _____

COMPANY: _____

ADDRESS: _____

TEL: _____ FAX: _____

EMAIL: _____

PRODUCTS MANUFACTURED: _____

APPLICATION DESCRIPTION

Motion Direction (Check One):

☐ Horizontal ☐ Vertical ☐ Up ☐ Incline Angle _____
☐ Down ☐ Down

☐ Rotary Horizontal ☐ Rotary Vertical ☐ Up ☐ Down

Weight (Min./Max.): _____ (Kg)

Cycle Rate: _____ (cycles/hour)

Additional Propelling Force (If known): _____ (N)

☐ Air Cyl: Bore _____ (mm) Max. Pressure _____ (bar) Rod Dia. _____ (mm)

☐ Hydraulic Cyl: Bore _____ (mm) Max. Pressure _____ (bar)
Rod Dia. _____ (mm)

☐ Motor _____ (kW) Torque _____ (Nm)

Ambient Temp.: _____ (°C)

Environmental Considerations: _____

SHOCK ABSORBER APPLICATION (All Data Taken at Shock Absorber)

Number Shock Absorbers to Stop Load

Impact Velocity (min./max.): _____ (m/s)

Shock Absorber Stroke Requirements: _____ (mm)

(a) Load Requirements: _____ (m/s²)

RATE CONTROL APPLICATION (All Data Taken at Shock Absorber)

Number of Rate Controls to Control the Load: _____

Control Direction: ☐ Tension (T) ☐ Compression (C)

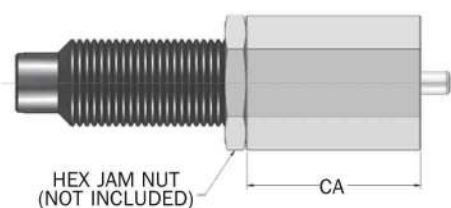
Required Stroke: _____ (mm) Est. Stroke Time: _____ (s)

Estimated Velocity at the Rate Control: _____ (m/s)

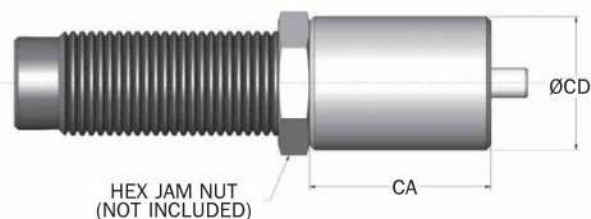
PMX 8M → PM 100M Series

Stop Collar (SC)

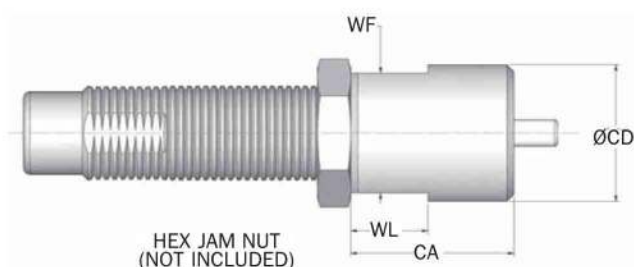
PMX8M



PMX10M

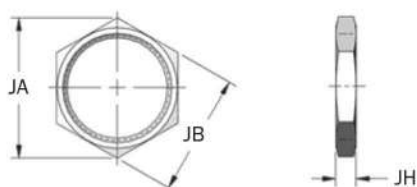


PM15M → PM100M



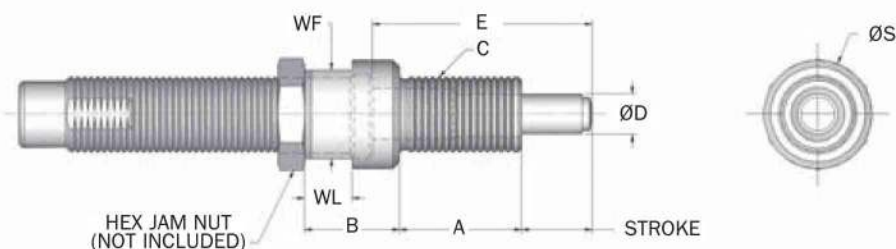
Catalog No./Model	Part Number	Model Ref	CA mm	CB mm	CD mm	WF mm	WL mm	Mass g
△SC M8 x 0.75	M99137175	PMX 8MF (B)	19,0	12,0	14,0	—	—	23
△SC M8 x 1	M99137058	PMX 8MC (B)	19,0	12,0	14,0	—	—	23
△SC M10 x 1	M98921058	PMX 10MF (B)	19,0	—	14,3	—	—	11
△SC M12 x 1	M930289171	PM 15M (B)	19,0	—	16,0	14,0	9,0	14
△SC M14 x 1.5	M930281171	SPM/PM 25MF (B)	25,4	—	21,0	19,0	12,0	38
△SC M14 x 1	M930286171	SPM/PM 25MF (B)	25,4	—	18,0	17,0	12,0	20
△SC M20 x 1.5	M930282171	SPM/PM 50M (B)	38,0	—	25,0	22,0	12,0	63
△SC M25 x 1.5	M930284171	PM 100MF (B)	44,5	—	38,0	32,0	15,0	215

Note: 1. △ = Non-standard lead time items, contact Enidine.

Jam Nut (JN)

Catalog No./Model	Part Number	Model Ref	JA mm	JB mm	JH mm	Mass g
JN M8 x 0.75	J29137185	PMX 8MF (B)	14,0	12,0	4,0	2
JN M8 x 1	J29137035	PMX 8MC (B)	14,0	12,0	4,0	2
JN M10 x 1	J24421167	PMX 10MF (B)	15,0	13,0	3,2	2
JN M12 x 1	J25588035	PM 15M (B)	17,3	15,0	4,0	2
JN M14 x 1	J24950035	SPM/PM 25MF (B)	19,7	17,0	4,0	3
JN M14 x 1.5	J23935035	SPM/PM 25MC (B)	19,7	17,0	4,0	3
JN M20 x 1.5	J22646035	SPM/PM 50MC (B)	27,7	24,0	4,6	9
JN M25 x 1.5	J23004167	PM 100MF (B)	37,0	32,0	4,6	15

Side Load Adaptor (SLA)



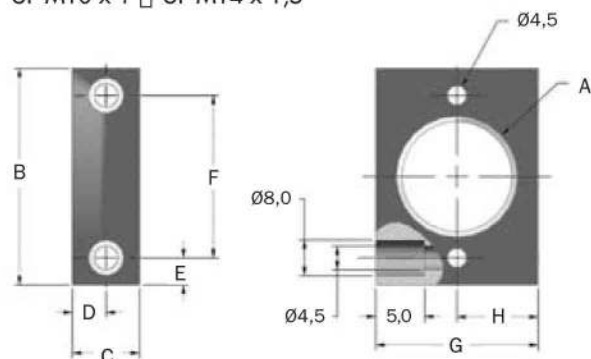
Catalog No./Model	Part Number	Model Ref	Stroke mm	A mm	B mm	C	D mm	E mm	S mm	WF mm	WL mm
SLA 10MF	SLA 33457	PMX 10MF (B)	6,4	12	11	M10 x 1	5,0	21,9	13,0	11,0	4,0
SLA 12MF	SLA 33299	PM 15MF (B)	10,0	18	14	M12 x 1	6,0	32,4	14,0	13,0	7,0
Δ SLA 14MF	SLA 33297	PM 25MF (B)	16,0	26	13	M14 x 1	8,0	45,2	18,0	15,0	7,0
SLA 14MC	SLA 33298	PM 25MC (B)	16,0	26	13	M14 x 1,5	8,0	45,2	18,0	15,0	7,0
Δ SLA 14MFS	SLA 33306	SPM 25MF (B)	12,7	20	16	M14 x 1	8,0	39,2	18,0	15,0	7,0
SLA 14MCS	SLA 33301	SPM 25 MC (B)	12,7	20	16	M14 x 1,5	8,0	39,2	18,0	15,0	7,0
SLA 20MC	SLA 33302	PM 50MC (B)	22,0	32	17	M20 x 1,5	11,0	62,0	25,0	22,0	7,0
SLA 20MCS	SLA 33262	SPM 50MC (B)	12,7	24	14	M20 x 1,5	11,0	41,5	25,0	22,0	7,0
SLA 25MF	SLA 33263	PM 100MF (B)	25,4	38	30	M25 x 1,5	15,0	73,2	36,0	32,0	7,0
SLA 27MC	SLA 33296	PM 100MC (B)	25,4	38	30	M27 x 3	15,0	73,2	36,0	32,0	10,0

Notes: 1. Maximum sideload angle is 30°.

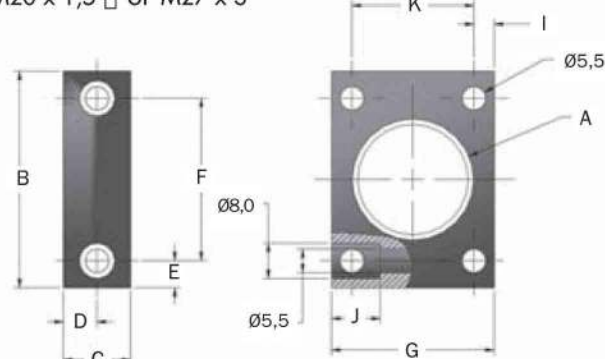
2. Δ = Non-standard lead time items, contact Enidine.

Universal Retaining Flange (UF)

UF M10 x 1 □ UF M14 x 1,5



UF M20 x 1,5 □ UF M27 x 3



Catalog No./Model	Part Number	Model Ref	A	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm
Δ UF M10 x 1	U16363189	PMX 10MF (B)	M10 x 1	38,0	12,0	6,0	6,25	25,5	25,0	12,5	—	5,0	—
Δ UF M12 x 1	U15588189	PM 15MF (B)	M12 x 1	38,0	12,0	6,0	6,25	25,5	25,0	12,5	—	5,0	—
Δ UF M14 x 1	U14950189	PM/SPM 25MF (B)	M14 x 1,5	45,0	16,0	8,0	5,0	35,0	30,0	15,0	—	5,0	—
Δ UF M14 x 1,5	U13935143	PM/SPM 25MC (B)	M14 x 1,5	45,0	16,0	8,0	5,0	35,0	30,0	15,0	—	5,0	—
Δ UF M20 x 1,5	U12646143	PM/SPM 50MC (B)	M20 x 1,5	48,0	16,0	8,0	6,5	35,0	35,0	—	4,75	10,0	25,5
Δ UF M25 x 1,5	U13004143	PM 100MF (B)	M25 x 1,5	48,0	16,0	8,0	6,5	35,0	35,0	—	4,75	10,0	25,5
Δ UF M27 x 3	U12587143	PM 100MC (B)	M27 x 3	48,0	16,0	8,0	6,5	35,0	35,0	—	4,75	10,0	25,5

Note: 1. Δ = Non-standard lead time items, contact Enidine.

2. All dimensions in millimeters.

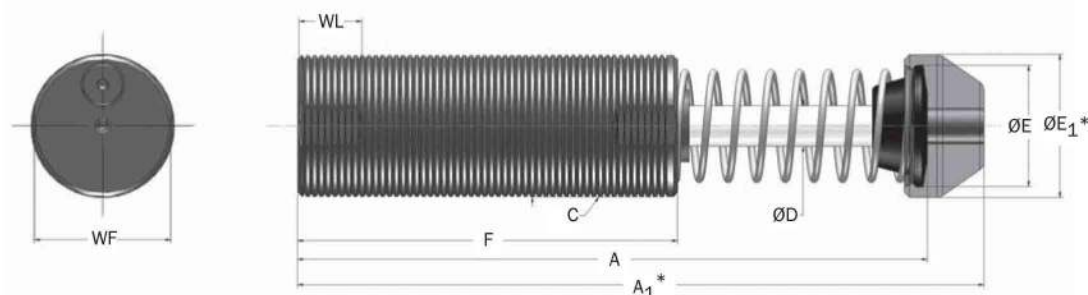
Non-Adjustable Series Hydraulic Shock Absorbers

PMXT Mid-Bore Series

Technical Data

PMXT 1525M → PMXT 2150M Series

Standard



*Note: A₁ and E₁ apply to urethane striker cap accessory.

Catalog No./Model	(S) Stroke mm	F _T Max. Nm/c	F _T C Max. Nm/hr	F _P Max. Reaction Force N	Nominal Coil Spring Force		F _D Max. Propelling Force N	Mass Kg
					Extended N	Compressed N		
PMXT 1525MF	25,0	367,0	126 000	29 000	48,0	68,0	6 700	1,0
PMXT 1550MF	50,0	735,0	167 000	29 000	48,0	78,0	6 700	1,1
PMXT 1575MF	75,0	1 130,0	201 000	29 000	31,0	78,0	6 700	1,3
PMXT 2050MF	50,0	1 865,0	271 000	60 500	80,0	155,0	17 800	2,7
PMXT 2100MF	100,0	3 729,0	362 000	60 500	69,0	160,0	17 800	3,3
PMXT 2150MF	150,0	5 650,0	421 000	60 500	87,0	285,0	17 800	4,2

Catalog No./Model	Damping Constant	A mm	A ₁ mm	C	D mm	E mm	E ₁ mm	F mm	WF mm	WL mm
PMXT 1525MF	-1,-2,-3	144,0	162,0	M45 x 1,5	12,7	38,0	44,5	92,0	43,5	19,0
PMXT 1550MF	-1,-2,-3	195,0	213,0	M45 x 1,5	12,7	38,0	44,5	118,0	43,5	19,0
PMXT 1575MF	-1,-2,-3	246,0	264,0	M45 x 1,5	12,7	38,0	44,5	143,0	43,5	19,0
△ PMXT 2050MF	-1,-2,-3	226,0	243,0	M64 x 2,0	19,0	50,0	57,0	140,0	61,5	19,0
△ PMXT 2100MF	-1,-2,-3	328,0	345,0	M64 x 2,0	19,0	50,0	57,0	191,0	61,5	19,0
△ PMXT 2150MF	-1,-2,-3	456,0	473,0	M64 x 2,0	19,0	60,0	60,0	241,0	61,5	19,0

Notes: 1. See page 59 for constant damping curves.

2. Urethane striker caps are available as accessories for models PM 1525MF to PM 2150MF.

3. △ = Non-standard lead time items, contact Enidine.

Non-Adjustable Series Hydraulic Shock Absorbers

PMXT Mid-Bore Series

PM
XT

PMXT 1525 CM(S) → PMXT 2150 CM(S) Series

Accessories

Clevis Mount

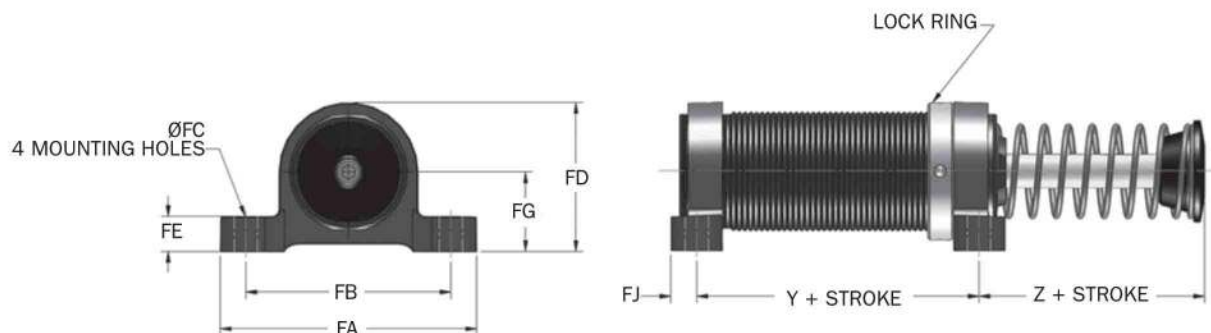


Catalog No./Model	L mm	M +0,13/-0,00 mm	N +0,13/-0,00 mm	P +0,00/-0,25 mm	Q +0,00/-0,25 mm	S mm	T mm	U mm	V mm	W mm	Z +0,51/-0,00 mm	CR mm	Mass Kg
△ PMXT 1525 CM (S)	199	9,60	12,70	19,00	25,4	51	25	25	26	22	12,9	14,3	1,36
△ PMXT 1550 CM (S)	250	9,60	12,70	19,00	25,4	51	25	25	26	22	12,9	14,3	1,45
△ PMXT 1575 CM (S)	300	9,60	12,70	19,00	25,4	51	25	25	26	22	12,9	14,3	1,63
△ PMXT 2050 CM (S)	306	19,07	19,07	31,70	38,0	73	38	38	35	26	16,0	23,0	3,72
△ PMXT 2100 CM (S)	408	19,07	19,07	31,70	38,0	73	38	38	35	26	16,0	23,0	4,22
△ PMXT 2150 CM (S)	537	19,07	19,07	31,70	38,0	73	38	38	35	26	16,0	23,0	5,08

Notes: 1. △ = Non-standard lead time items, contact Enidine.

2. "S" designates model is supplied with spring.

Flange Foot Mount



Catalog No./Model	Part Number	Model Ref	Y mm	Z mm	FA mm	FB mm	FC mm	FD mm	FE mm	FG mm	FJ mm	Bolt Size mm	Kit Mass g	Notes
FM M45 x 1.5	2F8637	PMXT 1500M Series	60,5	26,9	95,3	76,2	8,60	55,0	12,7	29,5	9,7	M8	370	3
FM M64 x 2	2F3010	PMXT 2000M Series	76,2	39,6	143,0	124,0	10,40	85,6	16,0	44,5	11,2	M10	1 050	1,3

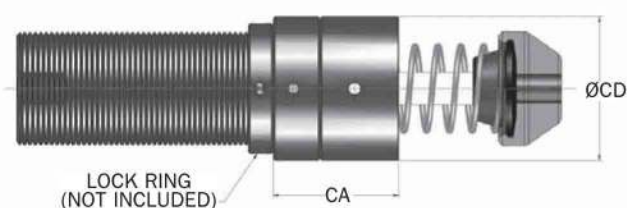
Notes: 1. PM 2150 Z dimension is 68,3 mm

2. Shock absorber must be ordered separately from foot mount kit.

3. All foot mount kits include two foot mounts and lock ring.

PMXT 1525M → PMXT 2150M Series

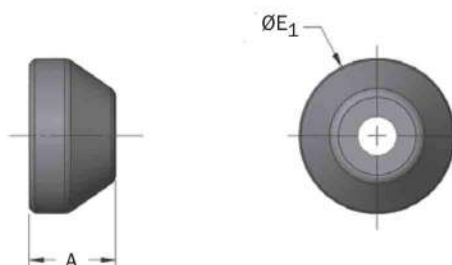
Stop Collar (SC)



Catalog No./Model	Part Number	Model Ref	CA mm	CD mm	Mass g
SC M45 x 1.5	8K8637	PMXT 1500M Series	49,0	56,5	340
△ SC M64 x 2 x 2	M93010057	PMXT 2050M Series	89,0	76,0	936
△ SC M64 x 2 x 4	M93011057	PMXT 2100M Series	114,0	76,0	1 191
△ SC M64 x 2 x 6	M93012057	PMXT 2150M Series	143,0	76,0	1 475

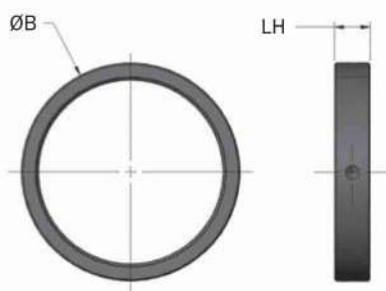
Note: 1. △ = Non-standard lead time items, contact Enidine.

Urethane Striker Cap (USC)



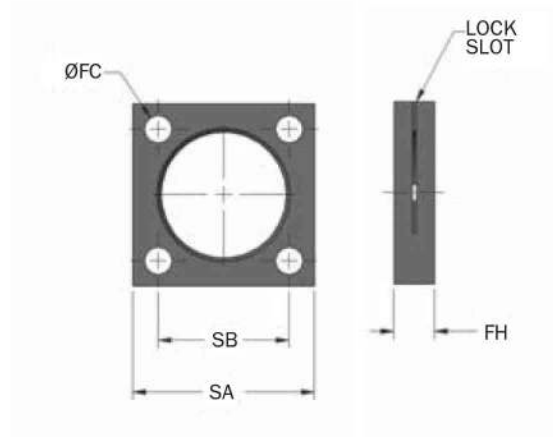
Catalog No./Model	Part Number	Model Ref	A mm	E ₁ mm	Mass g
UC 2940	C92940079	PMXT 1500M	24,5	44,5	14
UC 3010	C93010079	PMXT 2000M	24,0	57,0	23

Lock Ring (LR)



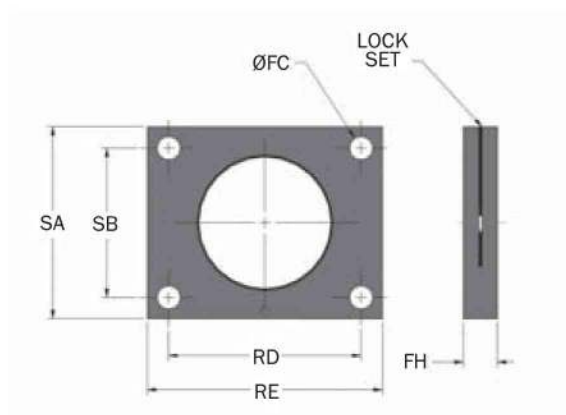
Catalog No./Model	Part Number	Model Ref	B mm	LH mm	Mass g
LR M45 x 1.5	F88637049	PMXT 1500M Series	57,2	9,5	75
LR M64 x 2	F83010049	PMXT 2000M Series	72,9	12,7	85

Square Flange (SF)



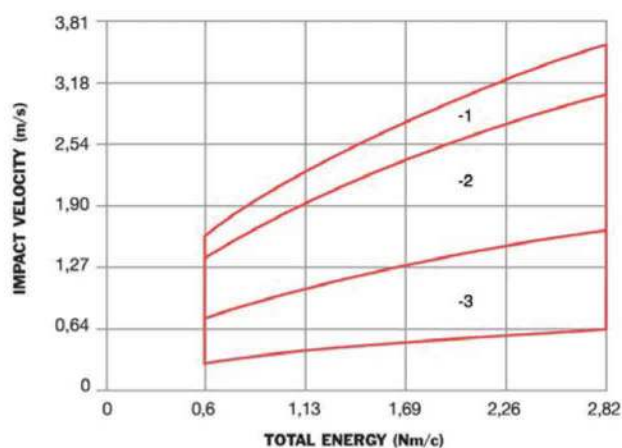
Catalog No./Model	Part Number	Model Ref	FC mm	FH mm	SA mm	SB mm	Bolt Size mm	Mass g
SF M45 x 1.5	M48637129	PMXT 1500M Series	8,6	12,7	57,2	41,3	M8	140
SF M64 x 2	M43010141	PMXT 2000M Series	10,4	15,7	89	69,9	M10	570

Rectangular Flange (RF)

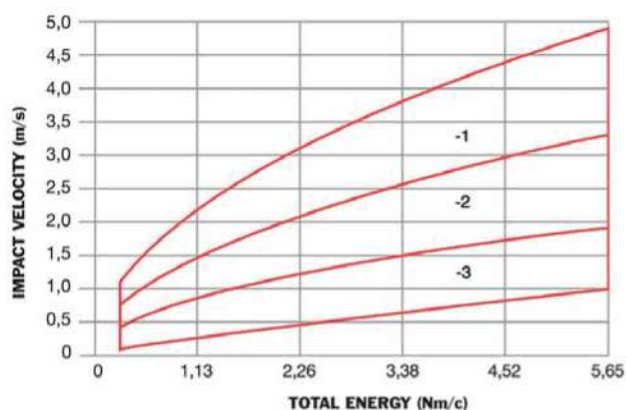


Catalog No./Model	Part Number	Model Ref	FC mm	FH mm	RD mm	RE mm	SA mm	SB mm	Bolt Size mm	Mass g
RF M45 x 1.5	M58637129	PMXT 1500M Series	8,6	12,7	60,5	76,2	57,2	41,4	M8	260

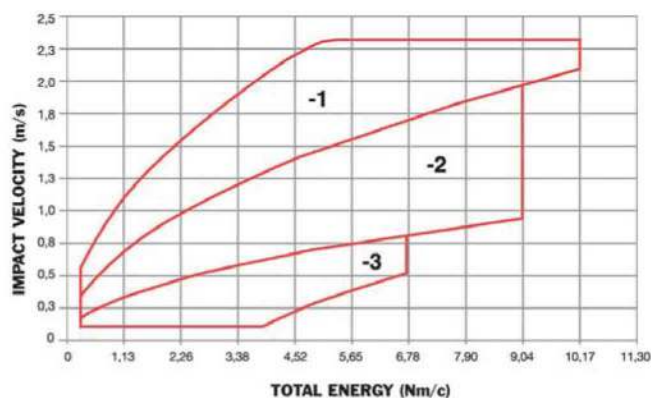
PMX 8M



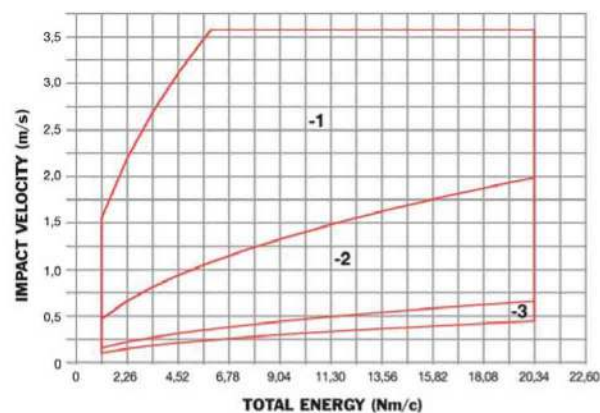
PMX 10M



PM 15M



SPM 25M

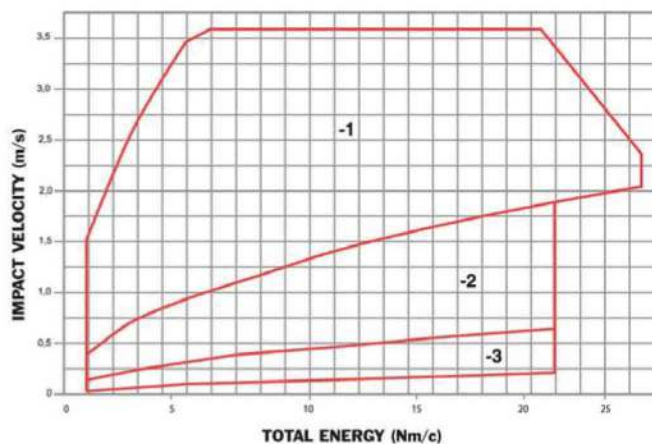


Note: Minimum impact velocity for PM models is 0,1 m/s.

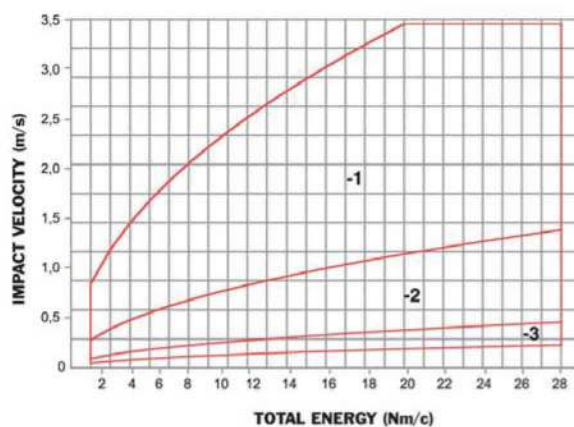
PM 25M → PM 100M Series

Sizing Curves

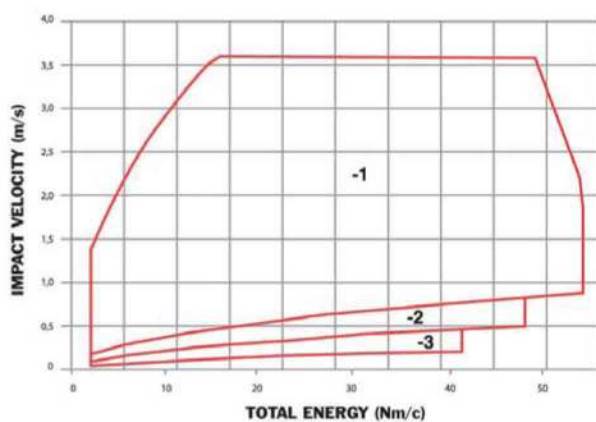
PM 25M



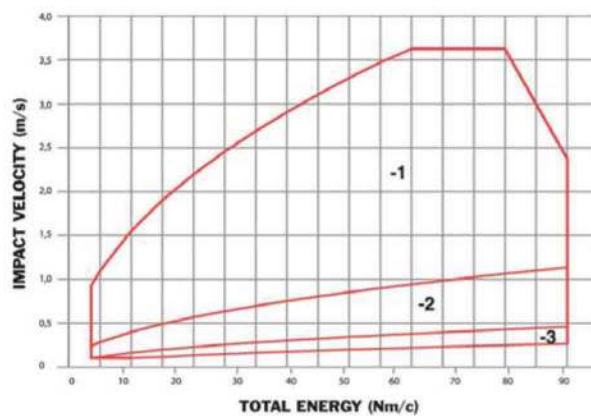
SPM 50M



PM 50M



PM 100M



Note: Minimum impact velocity for PM models is 0,1 m/s.

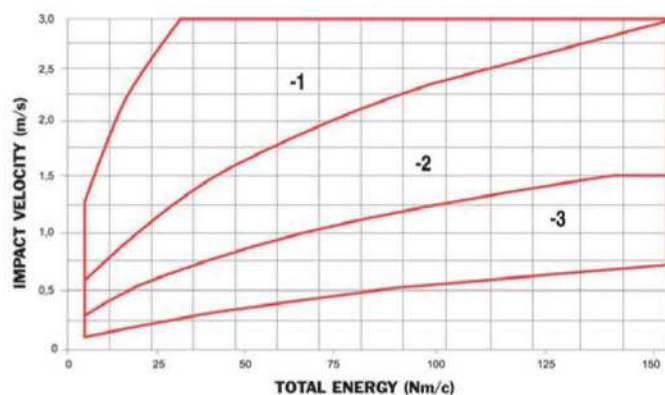
Non-Adjustable Series Hydraulic Shock Absorbers

PMXT Mid-Bore Series

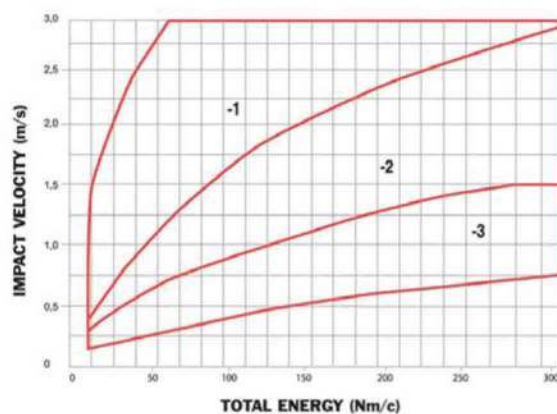
PM 120/125M → PMXT 1550M Series

Sizing Curves

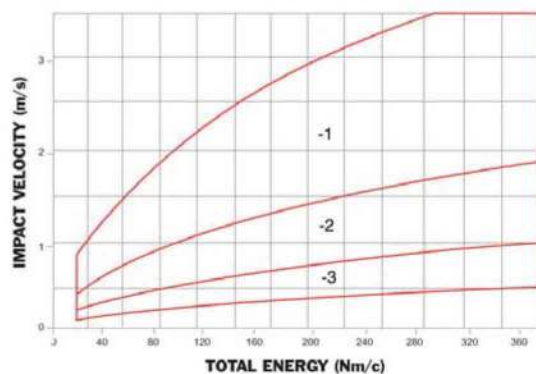
PM 120/125M



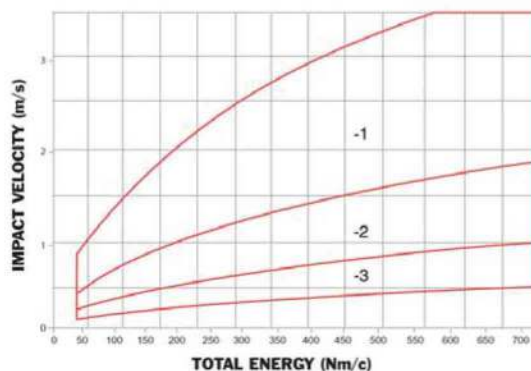
PM 220/225M



PMXT 1525M

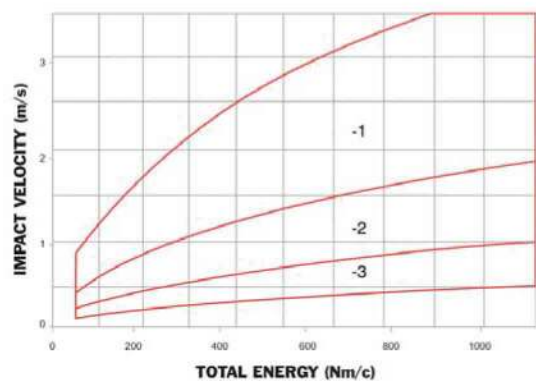


PMXT 1550M

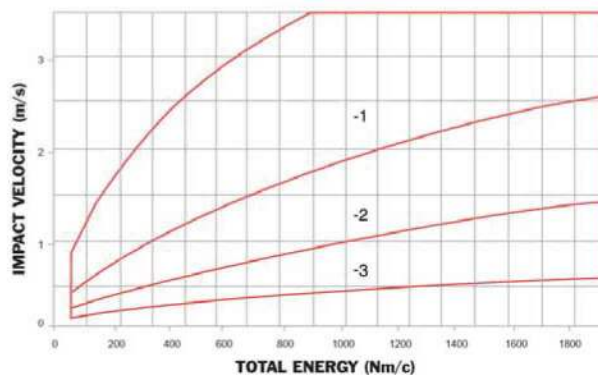


Note: Minimum impact velocity for PM models is 0,1 m/s.

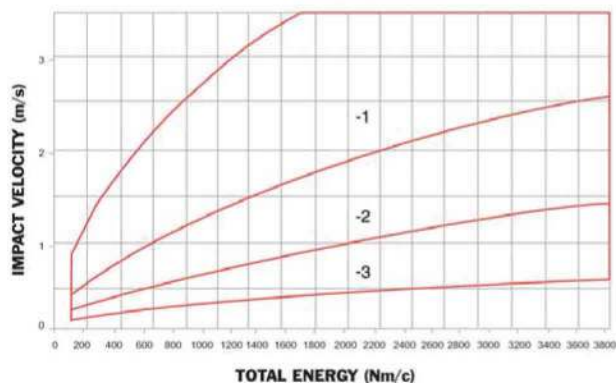
PMXT 1575M



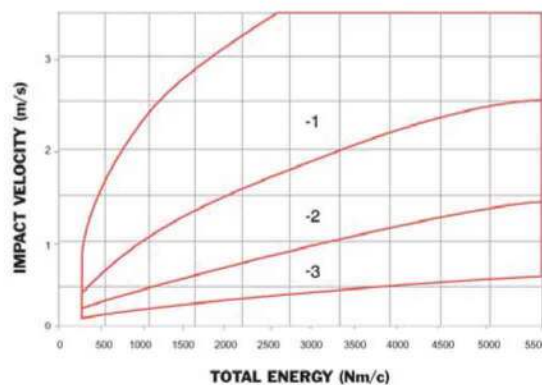
PMXT 2050M



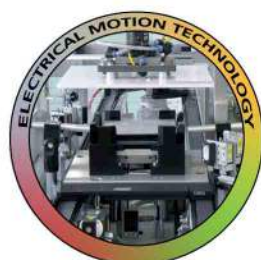
PMXT 2100M



PMXT 2150M



Note: Minimum impact velocity for PM models is 0,1 m/s.



we look forward to your application.

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