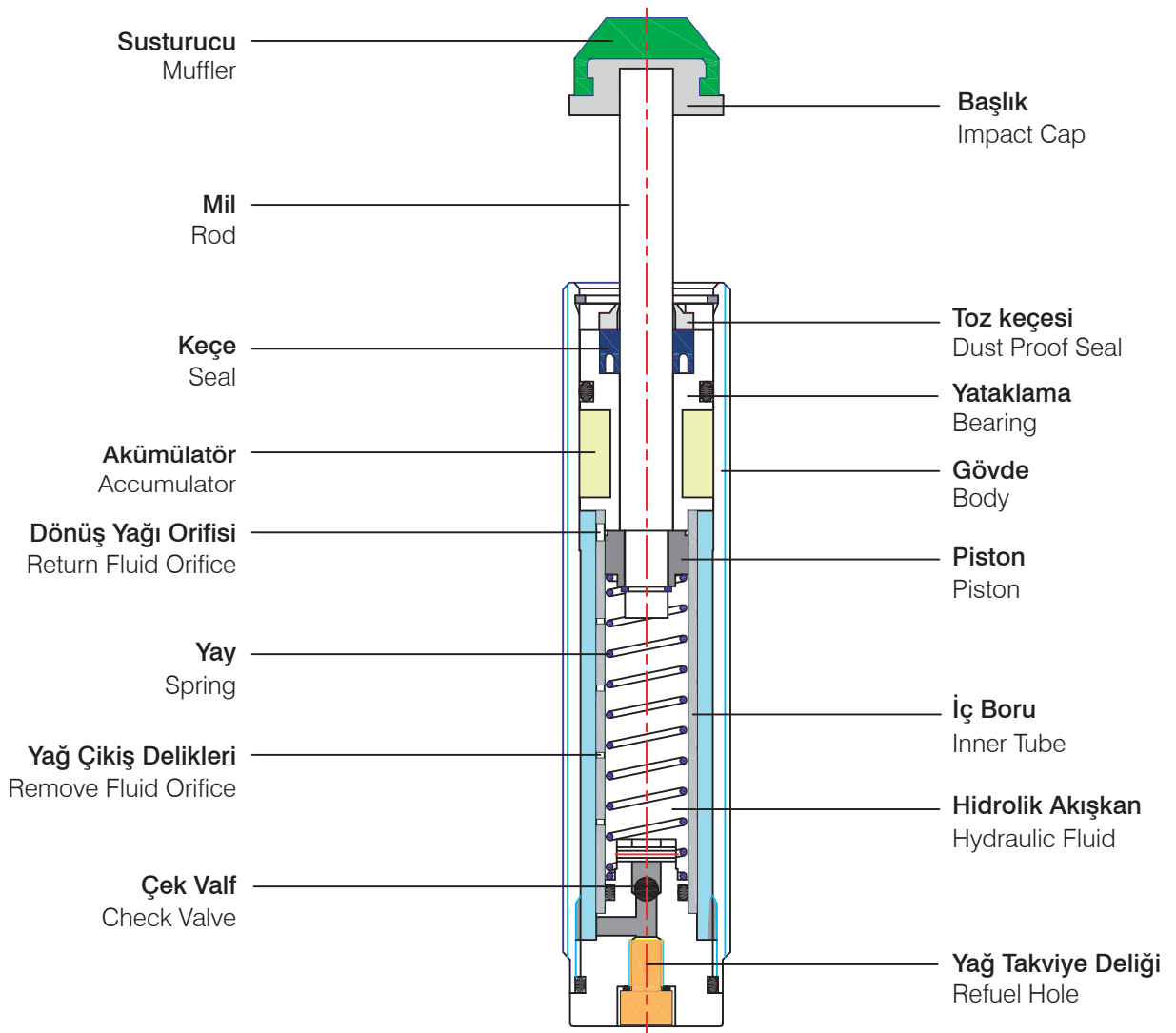


WINMAN Shock Absorberlerin Çalışma Prensipleri / Operating Principle Of Shock Absorbers

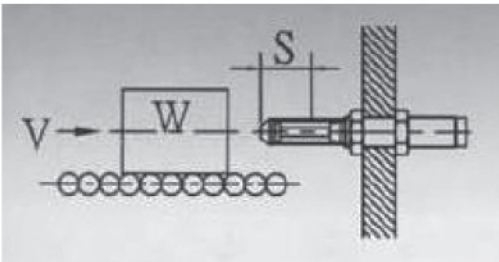
WINMAN Shock absorberler ana yapıları gövde, mil, keçe, iç boru, piston, akışkan ve yaydan oluşmuştur. Milin yükten dolayı aşağıya doğru hareketi yükün kuvvetini yay kuvveti ve hidrolik akışkanın direnci sayesinde yavaşlatarak sönümler ve durdurur. Doğrusal bir yavaşlama sağlanır. Yük kalktığında sönümleme yayı kurularak bir sonraki hareket için shock absorberin hazır olmasını sağlar.

WINMAN Shock absorber's main structure to combine with body, rod, bearing, inner tube, piston, fluid, spring. On impact the piston rod moves into the shock absorbers and the hydraulic fluid is push into accumulator to produce resistant force, the pressure in the inner tube remains constant throughout the entire impact stroke. WINMAN Shock Absorbers providing a linear deceleration and brings the impacting object to stop smoothly and quietly. At the end of the impact stroke, the return spring pushes the piston to its original position for next cycle.



WINMAN Sembol ve Formüller / Symbols and Formulas

E_1	(Nm) Kinetik enerji	$E_1 = 0.5 \times W \times V^2$	Kinetic energy (Nm)
E_2	(Nm) İş enerjisindeki itici kuvvet	$E_2 = F \times S$	Working enegy with propelling force (Nm)
E_3	(Nm) Toplam enerji	$E_3 = E_1 + E_2$	Total energy (Nm)
E_4	(Nm) Toplam enerjinin saate absorbe edilmesi	$E_4 = E_3 \times C$	Total energy to be absorbed per hour (Nm)
F	(N) İtici kuvvet	$F = 7.854 \times P \times d^2$	Propelling force (N)
F_m	(N) Maksimum darbe kuvveti	$F_m = 1.2 E_3 / S$	Maximum impact force (N)
V_g	(m / s) Serbest düşen cisim hızı	$V_g = \sqrt{2gh}$	Free falling object velocity (m / s)
We	(kg) Etkili Ağırlık	$We = 2 \times E_3 / V^2$	Effective weight (kg)
C	Saat başına etkin döngü sayısı Number of impact cycles per hour	HP (KW)	Motor gücü Motor rating
W	Nesnenin hareket ağırlığı (kg) Weight of moving object	d (cm)	Silindirin iç çapı Inner diameter of cylinder
P	(kg/cm ²) Working pressure	h (m)	Height
R	(m) radius	ST	2.5(1 ~ 2.5) Coefficient of torque
R_s	(m) Distance between shock absorber and rotate center	g	m/s ² = 9.81 Acceleration of gravity m/s ²
μ	Coefficient of friction	S (m)	Stroke of shock absorber
θ	(rad) Impact or inclined plane's angle	T (Nm)	Rotate torque
ω	(rad/s) Angular velocity	t (sec)	Deceleration time
V	(m/s) Impact velocity	m	Meter
		s	Second



Horizontal Impact

$w = 20 \text{ kg}$

$v = 1 \text{ m/s}$

$C = 1000 / \text{Hr}$

$E_1 = 0.5 \times W \times V^2$

$E_2 = 0$

$E_3 = E_1 + E_2$

$E_4 = E_3 \times C$

$We = W$

$E_1 = 0.5 \times 20 \times 1^2 = 10 \text{ Nm}$

$E_2 = 0$

$E_3 = 10 + 0 = 10 \text{ Nm} / C$

$E_4 = 10 \times 1000 = 10000 \text{ Nm} / \text{Hr}$

$We = 20 \text{ kg}$

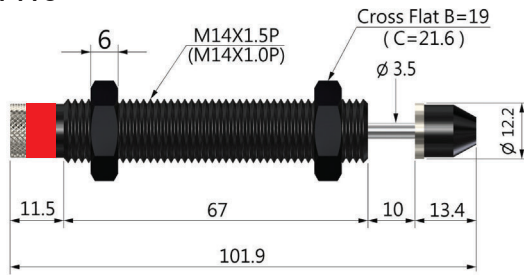
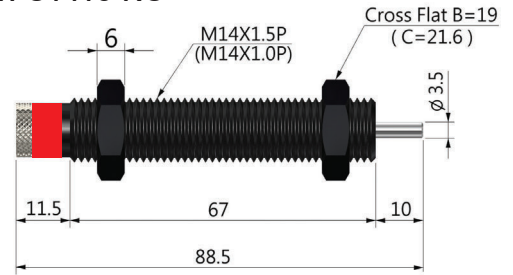
Model WSC1415-1

WINMAN WFC Serisi Shock Absorberler / WFC Series Shock Absorbers

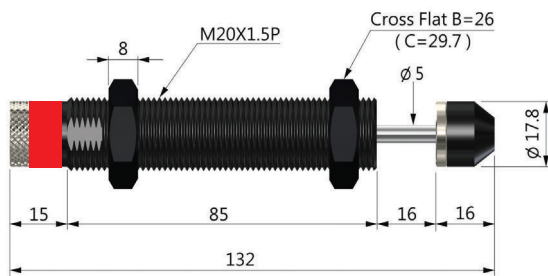
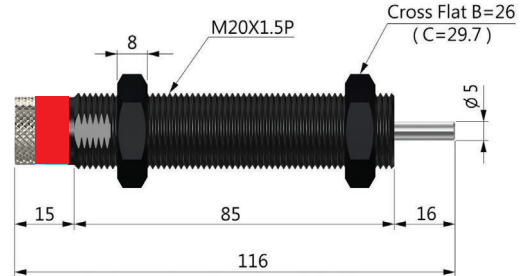


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR	RETURN FORCE	OPERATING TEMP. (°C)
WFC 1410	M14 x 1.5 M14 x 1.0	10	15	2.9 ~ 120	3.2	27,000	5 ~ 12	-10 ~ 70
WFC 2016	M20 x 1.5	16	28	5.4 ~ 224	3.2	33,600	9.8 ~ 20	-10 ~ 70
WFC 2020	M20 x 1.5	20	35	6.8 ~ 280	3.2	42,000	9 ~ 23	-10 ~ 70
WFC 2525	M25 x 1.5 M25 x 2.0	25	78	15 ~ 624	3.2	70,200	9.6 ~ 28	-10 ~ 70
WFC 2540	M25 x 1.5 M25 x 2.0	40	122	23.8 ~ 976	3.2	87,840	13.7 ~ 41	-10 ~ 70
WFC 2550	M25 x 1.5 M25 x 2.0	50	140	27 ~ 1120	3.2	100,800	13 ~ 28	-10 ~ 70
WFC 2725	M27 x 3.0 M27 x 1.5	25	78	15 ~ 624	3.2	70,200	8 ~ 27	-10 ~ 70
WFC 3625	M36 x 1.5	25	110	21 ~ 880	3.2	52,800	15.8 ~ 45	-10 ~ 70
WFC 3650	M36 x 1.5	50	220	43 ~ 1760	3.2	105,600	16.5 ~ 49.5	-10 ~ 70
WFC 4225	M42 x 1.5	25	260	58 ~ 5778	3	124,800	70 ~ 140	-10 ~ 70
WFC 4250	M42 x 1.5	50	520	85 ~ 8490	3.5	156,000	70 ~ 140	-10 ~ 70
WFC 4275	M42 x 1.5	75	780	108 ~ 9750	3.8	187,200	60 ~ 160	-10 ~ 70

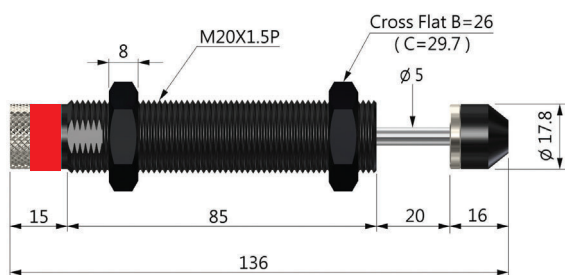
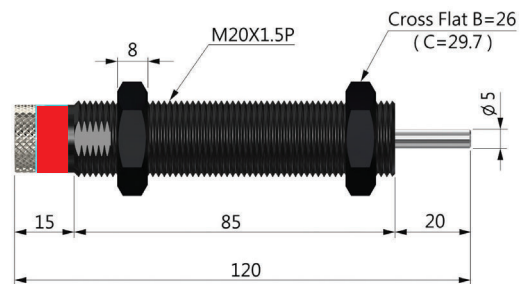
WINMAN WFC Serisi Shock Absorberler / WFC Series Shock Absorbers

WFC1410

WFC1410-NC


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE (NM)	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR (NM)	RETURN FORCE N	OPERATING TEMP °C
WFC 1410	M14 x 1.0 M14 x 1.5	10	15	2.9 ~ 120	3.2	27,000	5 ~ 12	-10 ~ 70

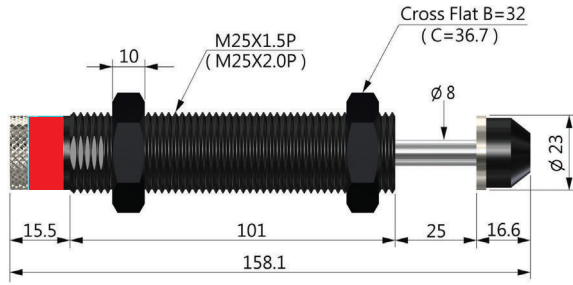
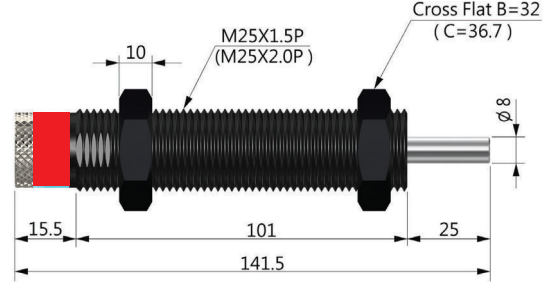
WFC2016

WFC2016-NC


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE (NM)	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR (NM)	RETURN FORCE N	OPERATING TEMP °C
WFC 2016	M20 x 1.5	16	28	5.4 ~ 224	3.2	,33 600	9.8 ~ 20	-10 ~ 70

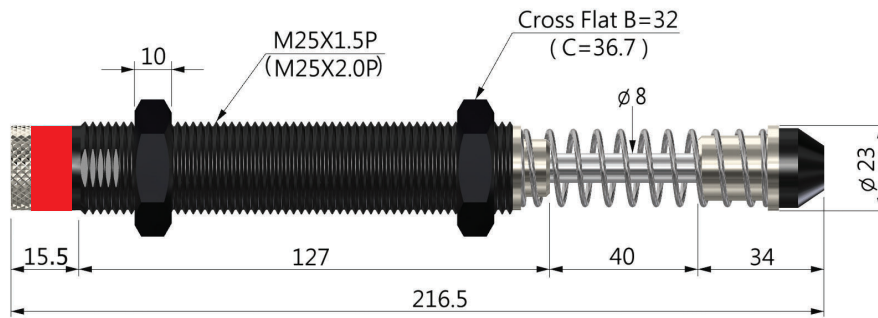
WFC2020

WFC2020-NC


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE (NM)	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR (NM)	RETURN FORCE N	OPERATING TEMP °C
WFC 2020	M20 x 1.5	20	35	6.8 ~ 280	3.2	42,000	9 ~ 23	-10 ~ 70

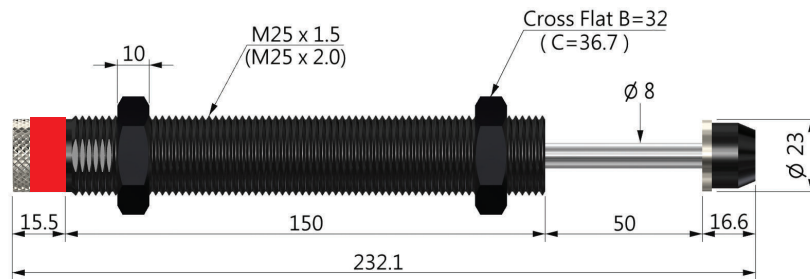
WINMAN WFC Serisi Shock Absorberler / WFC Series Shock Absorbers

WFC2525

WFC2525-NC


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE (NM)	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR (NM)	RETURN FORCE N	OPERATING TEMP°C
WFC 2525	M25 x 1.5 M25 x 2.0	25	78	15 ~ 624	3.2	70,200	9.6 ~ 28	-10 ~ 70

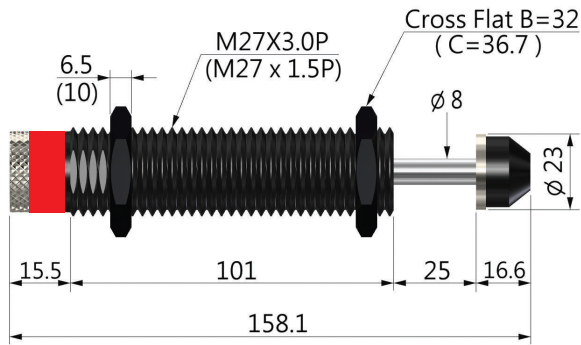
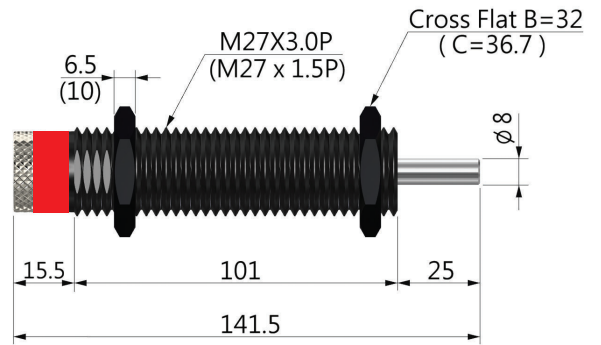
WFC2540


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE (NM)	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR (NM)	RETURN FORCE N	OPERATING TEMP°C
WFC 2540	M25 x 1.5 M25 x 2.0	40	122	23.8 ~ 976	3.2	87,840	13.7 ~ 41	-10 ~ 70

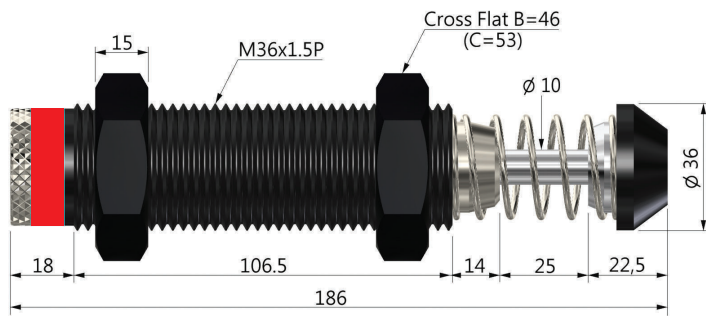
WFC2550


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE (NM)	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR (NM)	RETURN FORCE N	OPERATING TEMP°C
WFC 2550	M25 x 1.5 M25 x 2.0	50	140	27 ~ 1,120	3.2	100,800	13 ~ 28	-10 ~ 70

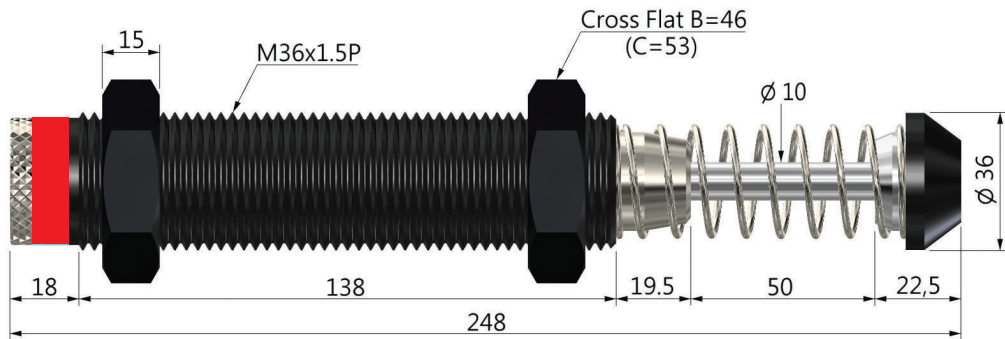
WINMAN WFC Serisi Shock Absorberler / WFC Series Shock Absorbers

WFC2725

WFC2725-NC


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE (NM)	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR (NM)	RETURN FORCE N	OPERATING TEMP °C
WFC 2725	M27 x 3.0 M27 x 1.5	25	78	15 ~ 624	3.2	70,200	8 ~ 27	-10 ~ 70

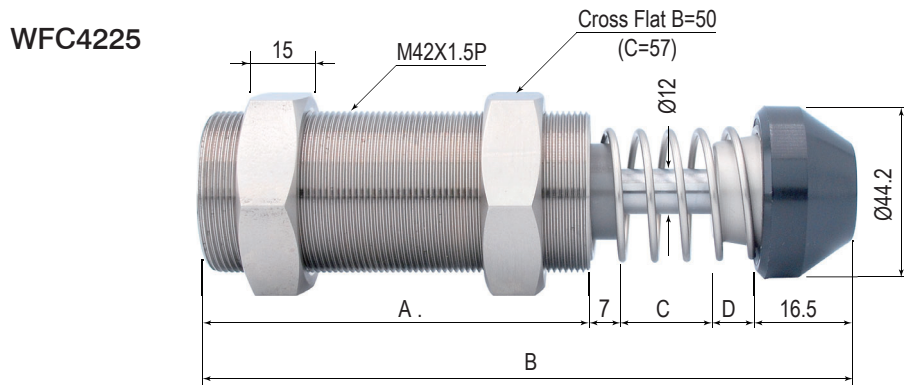
WFC3625


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE (NM)	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR (NM)	RETURN FORCE N	OPERATING TEMP °C
WFC 3625	M36 x 1.5	25	110	21 ~ 880	3.2	52,800	15.8 ~ 45	-10 ~ 70

WFC3650


MODEL	THREAD	STROKE mm	MAX NM PER CYCLE (NM)	EFFECTIVE MAX WE (KG)	MAX IMPACT SPEED (M/S)	MAX NM PER HOUR (NM)	RETURN FORCE N	OPERATING TEMP °C
WFC 3650	M36 x 1.5	50	220	43 ~ 1760	3.2	105,600	16.5 ~ 49.5	-10 ~ 70

WINMAN WFC Serisi Shock Absorberler / WFC Series Shock Absorbers



MODEL	A	B	C	D
WFC 4225	98,5	166	25	19
WFC 4250	124,5	217	50	19
WFC 4275	151	270,5	75	21