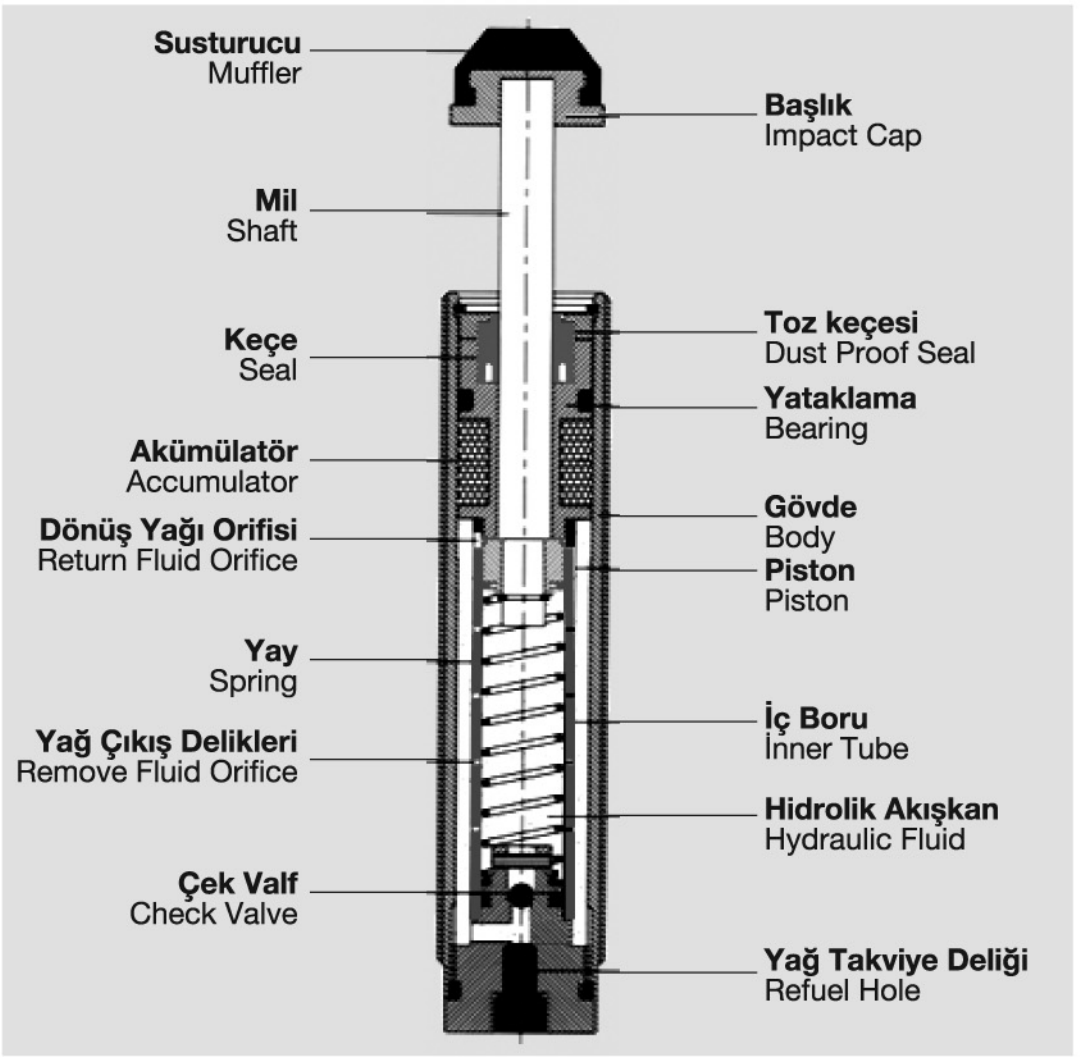
Shock Absorberlerin Çalışma Prensibi / Operating Principle Of Shock Absorbers

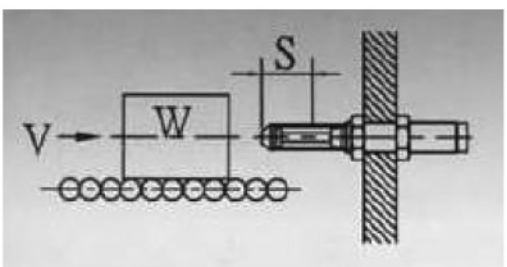
Winman shock absorberler ana yapıları gövde, mil, keçe, iç boru, piston, akışkan ve yaydan oluşmuştur. Milin yükten dolayı aşağıya doğru hareketi yükün kuvvetini yay kuvveti ve hidrolik akışkanın direnci sayesinde yavaşlatarak sönümler ve durdurur. Doğrusal bir yavaşlama sağlanır. Yük kalktığında sönümleme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

Winman Shock absorber's maın structure to combıne wıth body, rod, bearrıng, inner tube, pıston, fluıd, sprıng, On ımpact the pıston rod moves ınto the shock absorber and the Hydraulıc fluıd ıs push ınto accumulator to produce resıstans force, the pressure in theinner tube remaıns constant throughout the entıre ımpact stroke. Shock absorbers Provıdıng a linear deceleratıon and brıngs the ımpactıng object to stop smoothly and quıetly. At the end of the ımpact stroke, the return sprıng pushes the pıston to its orgınal posıtıon for next cycle.



Sembol ve Formüller / Symbols and Formulas

E_1	Kinetik enerji (eylemsizlik enerjisi) (NM) Kinetic energy (Inertial energy)	$E_1 = 0.5 \times W \times V^2$	
E_2	İş enerjisindekı ıtıcı kuvvet (Nm) work energy with propelling force	$E_2 = F \times S$	
E_3	Toplam enerji (Nm) total energy	$E_3 = E_1 + E_2$	
E_4	Toplam enerjinin saate absorbe edilmesi Total energy to be absorbed per hour	$E_4 = E_3 \times C$	
F	İtici kuvvet (N) Propelling force	$F = 7.854 \times P \times d^2$	
Fm	Maximum darbe kuvveti (N) Maximum ımpact force	$Fm = 1.2\ E_3 / S$	
Vg	Serbest düşen cisim hızı Free falling object velocity	$Vg = \sqrt{2gh}$	
We	Etkili ağırlık (KG) Effective weight	$We = 2 \times E_3 / V^2$	
C	Saat basına etkin döngü sayısı Number of ımpact cycles per hour	HP	Motor gücü (KW) Motor rating
W	Nesnenin haraket ağırlığı (KG) Weight of moving object	d	Silindirin iç çapı (cm) Inner diameter of cyclinder
P	(kg/cm2) Work pressure	h	(m) Height
R	(m) Radıus	St	Coefficient of torque 2.5 (1~2.5)
Rs	(m) Distance between shock absorber and rotate center	g	(m/s^2) Accelerration of gravity
μ	Coefficient of friction	S	(m) Stroke of shock absorber
θ	(rad) İmpact or inclined plane's angle	T	(Nm) Rotade torque
ω	(rad/s) Angular velocity	t	(sec) Deceleratıon tıme
V	(m/s) İmpact velocity		



Horizontal Impact

w = 20 kg
v = 1 m/s
C = 1000 / 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

$E_1 = 0.5 \times 20 \times 1^2 = 10$ Nm
$E_2 = 0$
$E_3 = 10 + 0 = 10$ Nm / C
$E_4 = 10 \times 1000 = 10000$ Nm / Hr
We = 20 kg
Model WSC1415-1

WSC Serisi / WSC Series Shock Absorbers

MODEL	THREAD	STROKE (mm)	MAX NM PER CYCLE (nm)	EFFECTIVE WE (kg)	MAX IMPACT SPEED (m/s)	MAX NM PER HOUR (nm)	OPERATING TEMP. (°C)
WSC 0806-1	M8 x 1.0	6	1.8	0.9 ~ 5.6	2.0	2400	-10 ~ 70
WSC 0806-2				2.5 ~ 10	1.2		
WSC 0806-3				5.6 ~ 22.5	0.8		
WSC 1008-1	M10 x 1.0	8	3.2	0.9 ~ 4.4	2.6	5760	-10 ~ 70
WSC 1008-2				2.8 ~ 10	1.5		
WSC 1008-3				10 ~ 40	0.8		
WSC 1210-1	M12 x 1.0	10	6	1.8 ~ 12	2.6	10800	-10 ~ 70
WSC 1210-2				5.3 ~ 18.7	1.5		
WSC 1210-3				12 ~ 75	0.8		
WSC 1412-1	M14 x 1.5	12	16	4.7 ~ 32	2.6	28800	-10 ~ 70
WSC 1412-2				14 ~ 50	1.5		
WSC 1412-3				56 ~ 200	0.8		
WSC 1415-1	M14 x 1.0 M14 x 1.5	15	20	5.9 ~ 27.8	2.6	36000	-10 ~ 70
WSC 1415-2				17.8 ~ 62.5	1.5		
WSC 1415-3				62.5 ~ 250	0.8		
WSC 1425-1	M14 x 1.0 M14 x 1.5	25	28	4.6 ~ 25	3.5	58800	-10 ~ 70
WSC 1425-2				14 ~ 87.5	2.0		
WSC 1425-3				25 ~ 350	1.5		
WSC 2020-1	M20 x 1.5	20	35	6.8 ~ 27	3.2	42000	-10 ~ 70
WSC 2020-2				17.5 ~ 70	2.0		
WSC 2020-3				48.6 ~ 777	1.2		
WSC 2030-1	M20 x 1.5	30	46	9 ~ 36	3.2	55200	-10 ~ 70
WSC 2030-2				23 ~ 92	2.0		
WSC 2030-3				64 ~ 575	1.2		
WSC 2030-1 SO	M20 x 1.5	30	46	9 ~ 36	3.2	52000	-10 ~ 70
WSC 2030-2 SO				23 ~ 92	2.0		

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MODEL	THREAD	STROKE (mm)	MAX NM PER CYCLE (nm)	EFFECTIVE WE (kg)	MAX IMPACT SPEED (m/s)	MAX NM PER HOUR (nm)	OPERATING TEMP. (°C)
WSC 2030-3 SO	M20 x 1.5	30	46	64 ~ 575	1.2	52000	-10 ~ 70
WSC 2050-1	M20 x 1.5	50	62	10.1 ~ 124	3.5	63240	-10 ~ 70
WSC 2050-2				18.3 ~ 253	2.6		
WSC 2050-3				55 ~ 496	1.5		
WSC 2050-11 A	M20 x 1.5	50	62	10.1 ~ 86	3.5	63240	-10 ~ 70
WSC 2050-12 A				7.8 ~ 55	4		
WSC 2050-13 A				6.1 ~ 38.3	4.5		
WSC 2525-1	M25 x 1.5 M25 x 2.0	25	78	15 ~ 69	3.2	70200	-10 ~ 70
WSC 2525-2				39 ~ 433	2.0		
WSC 2525-3				108 ~ 1733	1.2		
WSC 2540-1	M25 x 1.5 M25 x 2.0	40	122	20 ~ 108	3.5	87840	-10 ~ 70
WSC 2540-2				50 ~ 381	2.2		
WSC 2540-3				244 ~ 1991	1.0		
WSC 2550-1	M25 x 1.5 M25 x 2.0	50	140	20 ~ 124	3.7	100800	-10 ~ 70
WSC 2550-2				48 ~ 438	2.4		
WSC 2550-3				194 ~ 2286	1.2		
WSC 2580-1	M25 x 1.5 M25 x 2.0	80	198	24.7 ~ 99	4	118800	-10 ~ 70
WSC 2580-2				44 ~ 396	3.0		
WSC 2580-3				176 ~ 1584	1.5		
WSC 2725-1	M27 x 3.0	25	78	15 ~ 69	3.2	70200	-10 ~ 70
WSC 2725-2				39 ~ 433	2.0		
WSC 2725-3				108 ~ 1733	1.2		
WSC 3660-1	M36 x 1.5	60	260	57 ~ 231	3.0	124800	-10 ~ 70
WSC 3660-2				130 ~ 813	2.0		
WSC 3660-3				520 ~ 3250	1.0		

WSCD Serisi / WSCD Series Shock Absorbers

MODEL	THREAD	STROKE (mm)	MAX NM PER CYCLE (nm)	EFFECTIVE WE (kg)	MAX IMPACT SPEED (m/s)	MAX NM PER HOUR (nm)	OPERATING TEMP. (°C)
WSCD 2030-1	M20 x 1.5	30	46	9 ~ 41	3.2	55200	-10 ~ 70
WSCD 2030-2				23 ~ 144	2.0		
WSCD 2030-3				64 ~ 575	1.2		
WSCD 2035-1	M20 x 1.5	35	52	10 ~ 46	3.2	62400	-10 ~ 70
WSCD 2035-2				26 ~ 162	2.0		
WSCD 2035-3				72 ~ 650	1.2		
WSCD 2050-1	M20 x 1.5	50	62	10.1 ~ 124	3.0	63240	-10 ~ 70
WSCD 2050-2				18.3 ~ 253	2.6		
WSCD 2050-3				55 ~ 496	1.5		

WSCS Serisi / WSCS Series Shock Absorbers

MODEL	THREAD	STROKE (mm)	MAX NM PER CYCLE (nm)	EFFECTIVE WE (kg)	MAX IMPACT SPEED (m/s)	MAX NM PER HOUR (nm)	OPERATING TEMP. (°C)
WSCS 1412-1 NC		12	16	4.7 ~ 3.2	2.6	28800	-10 ~ 70
WSCS 1412-2 NC				14 ~ 50	1.5		
WSCS 1412-3 NC				50 ~ 200	0.8		
WSCS 2010-1 NC		10	18	3.5 ~ 14	3.2	21600	-10 ~ 70
WSCS 2010-2 NC				9 ~ 36	2.0		
WSCS 2010-3 NC				25 ~ 400	1.2		

WSC Serisi / WSC Series Shock Absorbers

WSC Serisi
WSC Series

WSCD Serisi
WSCD Series

WSCS Serisi
WSCS Series